

STAFFORD COUNTY PUBLIC SCHOOLS

Middle School and High School Mathematics Program Evaluation

2005 - 2006

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Executive Summary

Stafford County Public Schools (SCPS) conducted a summative evaluation of its middle school and high school mathematics programs. The evaluation was completed by the Departments of Accountability and Curriculum Services with support from a committee of mathematics stakeholders that included teachers, counselors, school administrators, and members of the community. This evaluation attempted to answer two fundamental research questions that addressed the quality of the mathematics program in terms of how well SCPS prepares students for mathematics performance after high school as well as the equity of the mathematics program as reflected in the opportunities for all students in SCPS to pursue excellence in their mathematics studies.

Analyses of state and national standardized test score data, advanced mathematics course participation rates, and student mathematics course sequencing summaries, as well as stakeholder surveys and focus groups, were utilized in answering these two research questions. These analyses indicated some clear strengths, as well as some areas for improvement, within the SCPS middle school and high school mathematics programs.

In terms of quality and equity, the strengths and weaknesses of the middle school and high school mathematics programs were evident in the following findings.

- SCPS has consistent mathematics Standards of Learning test and SAT Reasoning Test scores overall.
- Performance on Advanced Placement mathematics exams and overall student participation in college-level equivalency mathematics courses are weaknesses of the high school mathematics program.
- College-level equivalency course participation among Black students and Hispanic students is well below expected rates.
- Initial grade 6 mathematics course placement was identified as the most critical factor in determining the realistic chances of enrollment in a college-level equivalency mathematics course by the time a student reaches grade 12.

The following are recommendations meant to improve both the quality and the equity of the middle school and high school mathematics programs.

- Revise and clearly communicate the course options, placement criteria, and long-term impact of mathematics placement in grade 6 to all stakeholders.
- Develop specific goals and strategies to improve overall college-level equivalency mathematics course participation and performance.
- Develop a specific goal and plan to increase participation in these college-level equivalency courses among Black students and Hispanic students.
- Continue to improve the elementary mathematics instructional program to enhance mathematics performance among students before they enter middle school.

Introduction

Purpose/Scope

The purpose of this evaluation was to determine the effectiveness of the mathematics instructional program in Stafford County Public Schools by specifically assessing programs for students in grades 6-12. Additionally, this evaluation reviewed the Grade 5 Mathematics program in the school division within the context of the grade 5 to grade 6 student transition in mathematics.

History/Context

In May 2005, Dr. Andrea Bengier, Assistant Superintendent for Instruction and Technology, tasked Ms. Vickie Inge, Supervisor of Mathematics and Science, with conducting an evaluation of the high school mathematics program in Stafford County Public Schools (SCPS) with support from Ms. Christa Southall, Coordinator of Secondary Mathematics. Though the original tasking of the evaluation committee was to assess the high school mathematics program, this tasking was expanded to include middle and high school mathematics programs and also Grade 5 Mathematics in its role as the entry point into middle school mathematics instruction. Ms. Inge and Ms. Southall developed a framework for an evaluation plan based on a task force model previously employed in 2002 to review the elementary mathematics program in SCPS. Ms. Inge and Ms. Southhall also selected evaluation committee members from SCPS teachers, counselors, principals, assistant principals, parents, and community members.

Prior to the first evaluation committee meeting, several personnel and organizational changes within the school division significantly impacted this evaluation process. In August 2005, Dr. Chris Quinn was appointed Executive Director of Curriculum Services and immediately joined the evaluation steering committee. At the same time, Dr. Doug Schuch was appointed Executive Director of Accountability (originally "Executive Director of Testing and Program Evaluation"), a growth position in the school division. Based on a recommendation from the School Efficiency Review conducting during the 2004-05 school year, and with support from the school division and leadership, the position was created to address the need for a dedicated department to conduct and supervise instructional program evaluations at the school division level.

As a result of this new department and position, Dr. Bengier directed Dr. Schuch to join the steering committee and oversee its operation to ensure the quality of the research it conducted. In November 2005, Ms. Cheryl O'Connor was appointed as the school division's first Program Evaluation Specialist. In this new capacity, Dr. Schuch directed Ms. O'Connor to join the steering committee for this evaluation and assume many of the leadership tasks associated with its operation. Ms. O'Connor had already been serving as a member of the evaluation committee prior to her joining the steering committee. Additional and substantial changes were made to the evaluation's research design as a result of adding three additional administrative members to the steering committee.

This evaluation report and all of its contents were written by the SCPS Department of Accountability. The authors have made every attempt to accurately capture input from evaluation committee meetings in this report; however, this report does not necessarily represent the exact viewpoints of every committee member. Furthermore, as the committee was limited by practical time constraints, some of the material presented in this report may have been discussed only briefly or not at all in the formal committee meetings, yet this material has been included because of its importance to the overall program evaluation. Finally, the Department of Accountability worked to maintain the validity of all aspects of this evaluation process, which included making modifications to the evaluation process whenever necessary.

Research Questions

- 1. How do the middle and high school mathematics programs in Stafford County Public Schools prepare graduates for the rigors of post-secondary mathematics courses?
- 2. Does an "opportunity gap" exist within the Stafford County Public Schools middle and high school mathematics programs, and if so, what does that opportunity gap look like and why does it exist?

Research Methods

Both quantitative and qualitative research methods were employed to answer the two research questions pertaining to the quality (Question 1) and equity (Question 2) of the middle and high school mathematics programs in Stafford County Public Schools.

Quantitative Methods

Historical student performance data on standard measures of mathematics achievement were analyzed by the evaluation committee in the time available at several group meetings, while the Department of Accountability conducted more detailed quantitative analyses to complement the committee's work. The data sets that were analyzed included the Virginia Standards of Learning (SOL) Mathematics tests, Algebra I participation among middle school students, college-level equivalency mathematics course data (including Advanced Placement and Dual Enrollment), the Mathematics section of the SAT Reasoning Test, and mathematics course sequences for students in grade 12 during the 2005-06 school year.

Survey data was also collected from parents, counselors, and teachers. The evaluation committee was subdivided into five subcommittees, each led by a member of the steering committee, in order to develop survey and/or focus group questions for the following stakeholder groups: students, teachers, parents, principals and assistant principals, counselors, community, and higher education. These evaluation subcommittees attempted to customize the surveys for parents, counselors, and teachers using survey templates from evaluations used in other school divisions. Surveys were then modified based on data from five focus groups conducted on February 8, 2006. The Department of Accountability also modified surveys based on alignment with research questions and among the three survey instruments. Surveys were then validated for clarity, and modified as necessary, by administering them to individuals within the target sample prior to the actual distribution. Staff survey participants (all middle and high school counselors and all grade 5-12 mathematics teachers) were contacted via staff email, which provided a direct link to an online survey instrument, and all staff surveys were completed online. A random sample of parents with children attending SCPS in grades 5-12 were mailed a hard copy of the survey instrument and were also given the option of completing the survey online. A list of all households with at least one student in grades 5-12 was generated and alphabetized by parent last name, and a random household was selected as a starting point. From there, every 15th household was selected to receive the parent survey. Survey analyses were completed by members of the evaluation committee and complemented by the Department of Accountability due to time constraints.

Focus Groups

On February 8, 2006, the five evaluation subcommittees, each led by a member of the steering committee, conducted focus groups with the following stakeholder groups: students in grade 12, parents of students in grades 5-12, elementary and middle school teachers, high school teachers, and a combined higher education/community group. Prior to conducting the actual focus group, each subcommittee generated a list of focus group questions based on the two research questions. The steering committee then compared the

questions being asked to six different stakeholder focus groups and modified them in order to ensure alignment with research questions and with other focus group questions. Each subcommittee analyzed the data from its respective focus group and then shared the analysis with the evaluation committee. Data was also used to modify survey instruments and future focus group questions. On May 17, 2006, the Department of Accountability conducted a focus group with principals and assistant principals. Data was analyzed by the Department of Accountability and then shared with the evaluation committee.

Data Analyses

Quantitative Analyses

Several data sets were analyzed to answer the two research questions pertaining to the quality (Question 1) and equity (Question 2) of the middle school and high school mathematics programs in Stafford County Public Schools. The four quantitative data sets included student performance on state and nationally standardized mathematics tests, student participation in specific accelerated and/or advanced mathematics courses during middle school and high school, historical student mathematics course sequencing in middle school and high school, and results of stakeholder surveys.

Student Performance and Participation Data

Historical student performance data, such as mean scores, passing rates, and participation rates, on standard measures of mathematics achievement were compared to state and national data (subject to the availability of external comparison data) in order to measure the quality of the high school and middle school mathematics programs within the school division. Passing rates and participation rates of student subgroups (gender, ethnicity, socioeconomic status, disability status, and English language proficiency) on standard measures of mathematics achievement were also compared both internally and externally (subject to the availability of external comparison data) to measure the equity of the high school and middle school mathematics programs within the school division.

Virginia Standards of Learning (SOL) mathematics tests. The Virginia Standards of Learning (SOL) tests are a series of criterion-referenced tests administered to students attending public schools in Virginia. These SOL tests serve as the primary student achievement indicator for state and federal statutory accountability in Virginia. Each test is scored on a standard scale, with scores ranging from 200-600. Scores of 400 or above are designated as "passing," with scores ranging from 400-499 categorized as "proficient" and scores ranging from 500-600 designated as "advanced." In the area of mathematics, SOL tests were administered at Grades 3, 5, and 8, as well as at the conclusion of three specific high school mathematics courses: Algebra I, Geometry, and Algebra II. For the purpose of this evaluation, these three high school mathematics courses are combined into a single "High School Mathematics Tests" category, as this is the standard reporting format in Virginia's accountability plan. (Also note that mathematics SOL tests were added at Grades 4, 6, and 7 starting in the 2005-06 school year. Therefore, these new tests could not be included in this evaluation.) Three-year historical summary mathematics SOL test data for Stafford County Public Schools (SCPS) in Grades 5, 8, and High School were analyzed with respect to overall achievement and performance among student subgroups. This data is depicted in Table 1 and includes the state average in each category for comparison purposes. Additionally, 2004-05 performance data was disaggregated by subgroup and proficiency level for review and comparison of SCPS to all Virginia schools, as presented in Table 2 and Table 3, respectively.

Overall performance data, which reflects the quality of the mathematics program, reveals different results at each of three testing levels. Over the past three years, SCPS students

have performed below students in Virginia on the Grade 5 Mathematics SOL test. During the same three year period, SCPS students have significantly outperformed students in the state of Virginia on the Grade 8 Mathematics SOL test, while High School Mathematics SOL test performance has been slightly above the state average. The percentage of students in SCPS scoring Advanced Proficient on Grade 5, Grade 8, and High School Mathematics SOL tests in 2004-05 is nearly the same as the Advanced Proficient passing rate in Virginia.

Subgroup performance data, which reflects the equity of the mathematics program, also indicates mixed results. When compared to Virginia, the strongest mathematics subgroup performance in SCPS has been Black students on the Grade 8 Mathematics SOL test. This student subgroup has outperformed Black students in Virginia by an average of 9 percentage points over the past three school years. Though not as strong as Grade 8, Black students in SCPS have outperformed Black students in Virginia by an average of 3 percentage points over the past three school years on High School Mathematics SOL tests.

Table 1. Percentage of Students in SCPS and Virginia Passing Grade 5, Grade 8, and High School Mathematics SOL Tests in 2002-03 to 2004-05 by Student Subgroup

		ousgroup		_		<u>.</u>	
C1	Cardo	2002	2-03	2003	3-04	2004	4-05
Subgroup	Grade	SCPS	VA	SCPS	VA	SCPS	VA
	5	72	74	76	78	79	81
All	8	83	75	85	80	85	81
	HS	80	80	87	84	87	86
	5	57	60	61	66	64	69
Black	8	70	59	75	67	75	67
	HS	66	65	77	71	79	75
	5	70	65	74	69	74	72
Hispanic	8	84	68	74	73	79	73
	HS	74	73	83	76	80	79
	5	76	81	80	84	83	86
White	8	87	81	88	85	89	86
	HS	83	84	89	88	89	90
	5	43	50	43	52	43	55
SWD ¹	8	41	39	42	45	42	50
	HS	50	54	57	59	57	65
	5	56	60	41	67	54	70
LEP^2	8	73	65	33	70	52	70
	HS	83	74	85	78	82	81
	5	55	59	58	66	50	69
ECD^3	8	67	59	67	67	67	67
	HS	67	69	73	75	76	78

¹ SWD = Students with Disabilities

Note: SCPS administered the Mathematics 8, Algebra I, Geometry, and Algebra II SOL Tests to students in Grades 6, 7, and 8 who completed accelerated mathematics coursework.

²LEP = Students with Limited English Proficiency

³ ECD = Students Identified as Economically Disadvantaged

Source: Virginia Department of Education

Table 2. Percentage of SCPS Students by Subgroup and Proficiency Level on Grade 5, Grade 8, and High School Mathematics SOL Tests in 2004-05

Student Subgroup	Proficiency	Grade 5	Grade 8	High School
All Students	All Passing	79	85	87
	Advanced	24	23	26
	Proficient	54	62	61
	Fail	21	15	13
American Indian Students	All Passing	75	86	89
	Advanced	25	14	22
	Proficient	50	71	67
	Fail	25	14	11
Asian Students	All Passing	78	95	92
	Advanced	29	20	40
	Proficient	49	75	52
	Fail	22	5	8
Black Students	All Passing	64	75	79
	Advanced	9	13	14
	Proficient	55	61	65
	Fail	36	25	21
Hispanic Students	All Passing	74	79	80
	Advanced	19	19	22
	Proficient	55	60	59
	Fail	26	21	20
White Students	All Passing	83	89	89
	Advanced	28	26	29
	Proficient	55	63	60
	Fail	17	11	11
Other Students	All Passing	68	85	82
	Advanced	9	38	23
	Proficient	59	46	59
	Fail	32	15	18
Female Students	All Passing	80	86	87
	Advanced	25	22	26
	Proficient	55	65	61
	Fail	20	14	13
Male Students	All Passing	77	85	87
	Advanced	23	24	26
	Proficient	54	60	61
	Fail	23	15	13
Students with Disabilities	All Passing	43	42	57
	Advanced	4	5	5
	Proficient	39	37	52
	Fail	57	58	43
Limited English Proficient Students	All Passing	54	52	82
	Advanced	8	4	13
	Proficient	46	48	69
	Fail	46	48	18
Students Identified as Disadvantaged	All Passing	50	67	76
	Advanced	6	6	11
	Proficient	44	61	64
	Fail	50	33	24

Source: Virginia Department of Education

Table 3. Percentage of Virginia Students by Subgroup and Proficiency Level on Grade 5, Grade 8, and High School Mathematics SOL Tests in 2004-05

Student Subgroup	Proficiency	Grade 5	Grade 8	High School
All Students	All Passing	81	81	86
	Advanced	25	22	25
	Proficient	55	59	61
	Fail	19	19	14
American Indian Students	All Passing	81	79	82
	Advanced	25	18	19
	Proficient	56	61	64
	Fail	19	21	18
Asian Students	All Passing	90	93	93
	Advanced	42	45	43
	Proficient	49	48	49
	Fail	10	7	7
Black Students	All Passing	69	67	75
	Advanced	12	8	11
	Proficient	57	59	64
	Fail	31	33	25
Hispanic Students	All Passing	72	73	79
•	Advanced	15	14	16
	Proficient	57	59	63
	Fail	28	27	21
White Students	All Passing	86	86	90
	Advanced	31	27	29
	Proficient	55	59	61
	Fail	14	14	10
Other Students	All Passing	82	81	84
	Advanced	29	28	28
	Proficient	53	53	57
	Fail	18	19	16
Female Students	All Passing	82	83	86
	Advanced	25	21	24
	Proficient	57	61	62
	Fail	18	17	14
Male Students	All Passing	79	79	85
	Advanced	26	23	25
	Proficient	54	56	60
	Fail	21	21	15
Students with Disabilities	All Passing	55	50	65
	Advanced	11	9	10
	Proficient	44	41	55
	Fail	45	50	35
Limited English Proficient Students	All Passing	70	70	81
0	Advanced	16	18	23
	Proficient	54	52	58
	Fail	30	30	19
Students Identified as Disadvantaged	All Passing	69	67	78
	Advanced	13	9	14
	Proficient	56	58	64
	Fail	31	33	22

Source: Virginia Department of Education

By contrast, on the Grade 5 Mathematics SOL test, Black students in SCPS have performed below Black students in Virginia by an average of 4 percentage points over the past three school years. Therefore, when compared to the state, the performance of Black students in SCPS mirrors the comparisons for all students on mathematics SOL tests. This trend is also reflected in 2004-05 SOL test proficiency level data, where a greater percentage of Black students in SCPS scored Advanced Proficient on both the Grade 8 and High School Mathematics SOL tests when compared to Black students in Virginia, while a lower percentage of Black students in SCPS scored Advanced Proficient on the Grade 5 Mathematics SOL tests when compared to Black students in Virginia. This data is particularly significant as the Black student subgroup is the largest ethnic minority group in the school division, accounting for approximately 20 percent of the overall student population.

Unlike the Black student subgroup, there is divergence from overall trends in mathematics SOL test performance among other major student subgroups when compared to performance by these subgroups in Virginia. Hispanic students in SCPS, for example, who represent approximately 6 percent of all students in the school division, have consistently outperformed Hispanic students in Virginia over the past three school years on the Grade 5, Grade 8, and High School Mathematics SOL tests. Additionally, 2004-05 SOL test proficiency level data indicates that a greater percentage of Hispanic students in SCPS scored Advanced Proficient on the Grade 5, Grade 8, and High School Mathematics SOL tests when compared to Hispanic students in Virginia. By contrast, students with disabilities in SCPS have consistently performed below students with disabilities in Virginia over the past three school years on the Grade 5, Grade 8, and High School Mathematics SOL tests, with the most pronounced disparity (8 percentage points below the state average) on the Grade 5 Mathematics SOL test. A sharp disparity between students with disabilities in SCPS and students with disabilities in Virginia was also present when comparing rates of students scoring Advanced Proficient on Grade 5, Grade 8, and High School Mathematics SOL tests.

In cases of the subgroups for students who are economically disadvantaged and students with limited English proficiency, the comparative results are mixed. Students who are economically disadvantaged in SCPS have performed nearly the same as students who are economically disadvantaged in Virginia over the past three school years on the Grade 8 Mathematics SOL test, while students who are economically disadvantaged in SCPS have consistently performed below students who are economically disadvantaged in Virginia over the past three school years on the Grade 5 and High School Mathematics SOL tests, with the most pronounced disparity (10 percentage points below the state average, including a 19 percentage point lag during 2004-05) on the Grade 5 Mathematics SOL test. Also, a sharp disparity between students who are economically disadvantaged in SCPS and students who are economically disadvantaged in Virginia was present when comparing rates of students scoring Advanced Proficient on Grade 5, Grade 8, and High School Mathematics SOL tests. Additionally, students with limited English proficiency in SCPS have outperformed students with limited English proficiency in Virginia by an average of 5 percentage points on High School Mathematics SOL tests over the past three school years, while students with limited English proficiency in SCPS have consistently performed well below students with limited English proficiency in Virginia over the past three school years on the Grade 5 and Grade 8 Mathematics SOL tests. As was the case with both the students with disabilities and students who are economically disadvantaged subgroups, a sharp disparity between students with

limited English proficiency in SCPS and students with limited English proficiency in Virginia was present when comparing rates of students scoring Advanced Proficient on Grade 5, Grade 8, and High School Mathematics SOL tests.

Algebra I participation rates among middle school students. Student participation rates in Stafford County Public Schools (SCPS) in accelerated or advanced mathematics courses during middle school and high school were calculated in order to assess the quality of the high school and middle school mathematics programs within the school division. In middle school, the specific indicator course for advanced mathematics participation is a high school level Algebra I course.

Middle school student participation in a high school level Algebra I course has remained relatively steady over the past three school years, as indicated in Table 4. Further mining of this data with respect to student subgroups proved impractical due to non-standardization of course names and descriptions within the student information management system, as well as the overall data mining limitations of the school division.

Table 4. SCPS Middle School Algebra I Participation

	2003	2004	2005
Participation Rate	31%	32%	31%

Sources: Virginia Department of Education and SCPS Comprehensive Information Management for Schools (CIMS) via Business Objects and SOL Tracker

Advanced Placement (AP) mathematics exam performance. The Advanced Placement (AP) Program offers a nationally recognized college-level curriculum in multiple subject areas (including mathematics) to high school students. In mathematics, Stafford County Public Schools (SCPS) offers three AP courses, Calculus AB, Calculus BC, and Statistics, though every course is not necessarily offered at every high school. Students who enroll in AP courses have the option of taking AP exams in May of each year and potentially receive college credit as a result of their exams. AP exams are norm-referenced and yield scaled scores ranging from 1 to 5. College credit is generally awarded for scores in the 3-5 range, but individual colleges and universities set the minimum score required for the award of credits in each subject area. A score of 3 is generally considered to be the passing score on AP exams.

Within the context of this mathematics program evaluation, it is important to note that only a fraction of the total SCPS student population have enrolled in AP courses in mathematics, and that enrollment is limited in many cases to students who meet certain entrance criteria (i.e. prerequisite courses, course grades, teacher recommendations, etc.), which vary among the high schools. Additionally, SCPS, like many school divisions, strongly encourages students in AP courses to take the corresponding AP exams, though no specific SCPS policy or regulation requires AP exam participation, and SCPS has not typically funded AP exams for students, which may also impact AP exam participation. (Students who are economically disadvantaged are eligible for free AP exams that are funded by the state of Virginia.)

Table 5 and Table 6 depict AP mathematics exam performance by students in SCPS compared to students in Virginia and the United States over the past five years. As both Tables 5 and 6 indicate, SCPS AP exam scores in mathematics have generally fallen below state and national averages. This trend is unexpected in a school division that may use selection criteria for AP courses and that does not make AP exam participation mandatory for students enrolled in AP courses. Additionally, SCPS student performance on the most challenging AP mathematics exam, Calculus BC, has been significantly lower than state and national averages over the past three years.

Table 5. Mean Scores on Advanced Placement Mathematics Exams

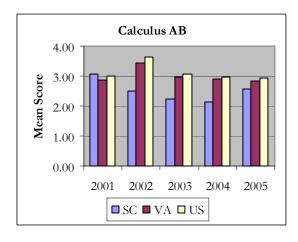
AP Course	2001			2002		2003			2004			2005			
Ar Course	SC	VA	US												
Calculus AB	3.06	2.86	2.99	2.50	3.44	3.62	2.25	2.98	3.08	2.15	2.89	2.97	2.57	2.85	2.94
Calculus BC	2.09	3.44	3.62	3.39	3.68	3.74	2.84	3.59	3.69	2.53	3.50	3.65	2.25	3.67	3.73
Statistics	2.34	2.76	2.85	2.10	2.55	2.77	2.44	2.64	2.92	2.89	2.69	2.87	2.47	2.69	2.88

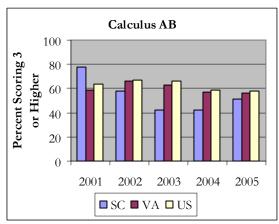
Source: College Board

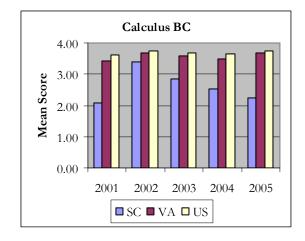
Table 6. Percent of Test-Takers Scoring 3 or Higher on Advanced Placement Mathematics Exams

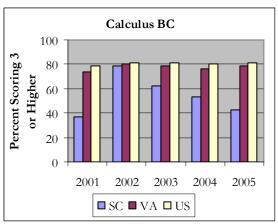
AP Course	2001			2002		2003			2004			2005			
Ar Course	SC	VA	US	SC	VA	US	SC	VA	US	SC	VA	US	SC	VA	US
Calculus AB	78	59	64	58	66	67	42	63	66	42	57	59	51	56	58
Calculus BC	37	74	79	79	80	81	62	79	81	53	76	80	43	79	81
Statistics	46	55	60	34	48	57	46	52	62	60	53	60	43	54	61

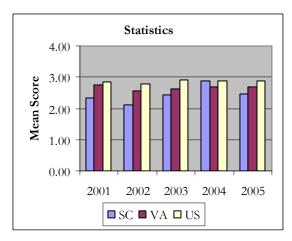
Source: College Board

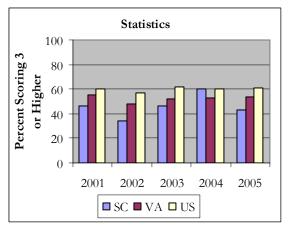












College-level mathematics course participation. Student participation rates in college-level equivalency mathematics courses during high school were calculated in order to assess the quality of the high school and middle school mathematics programs within the school division. In high school, the specific college-level equivalency courses included Advanced Placement (AP) Calculus AB, AP Calculus BC, AP Statistics, and Dual Enrollment (DE) Calculus. The dual enrollment program is a series of community college courses taught in the high school setting by certified high school teachers who are also certified community college instructors. Successful completion of a dual enrollment course results in both a high school and a community college credit. Unlike the AP program, awarding of college credit is based entirely on semester course grades. Participation in AP mathematics exams for 2005 among standard student subgroups was also compared internally to measure the equity of the high school and middle school mathematics programs within the school division.

Data in Table 7 indicates that 14-16% of Stafford County Public Schools (SCPS) high school students enrolled in a college-level equivalency mathematics course in high school over the past three years. Since approximately 31% of SCPS students enrolled in Algebra I while in middle school (Table 4), only about 50% of the students who received accelerated mathematics instruction in middle school continued to pursue a college-level equivalency course in mathematics during high school. Additionally, Table 8 displays how Black students are severely underrepresented and Hispanic students are underrepresented in college-level

equivalency mathematics course exams, while Asian students are highly overrepresented in these course exams. Further mining of this data with respect to student subgroups proved impractical due to non-standardization of course names and descriptions within the student information management system, as well as the overall data mining limitations of the school division.

Table 7. SCPS College-Level Equivalency Mathematics Course Participation

	2003	2004	2005
AP Calculus AB	36	26	37
AP Calculus BC	69	62	67
AP Statistics	121	95	128
DE Calculus	32	45	28
Total	258	228	260
Grade 12 Enrollment	1612	1649	1711
Participation Rate	16%	14%	15%

Sources: College Board, Virginia Department of Education, and SCPS Comprehensive Information Management for Schools (CIMS)

Table 8. Advanced Placement Mathematics Exam Participation by Ethnicity* in SCPS 2005 vs. Ethnicity of Student Population in SCPS 2005 (Grade 12)

	Asian	Black	Hispanic	White
AP Calculus AB	3	5	1	24
AP Calculus BC	7	2	1	51
AP Statistics	13	9	5	93
Total	23	16	7	168
AP Participation Rate	10%	7%	3%	72%
Grade 12 Enrollment	2%	19%	5%	73%

^{*}Only statistically significant ethnic groups are listed in this table. Also, not all students elect to report their ethnicity for AP Exams.

SAT Reasoning Test. The SAT Reasoning Test is a nationally recognized norm-referenced college-entrance exam that includes specific scores in the area of mathematics. The SAT reports converted "z" scores with a range of 200-800 and a universal mean score of 500 per test section. Each 100 point deviation from a score of 500 represents one standard deviation above or below the mean for each test section.

Within the context of this mathematics program evaluation, it is important to note that unlike the analysis of Standards of Learning test performance, not all students in grade 12 take the SAT Reasoning Test. Because the population of SAT test-takers is self-selected, the College Board, which administers the SAT, states that "using aggregate SAT Reasoning Test scores to compare or evaluate districts is not valid." However, because "the college-bound population is relatively stable from year to year," it is valid to "look at year-to-year

Sources: College Board and Virginia Department of Education

educational and demographic changes in this population, along with changes in test performance."

The mean score for students in Stafford County Public Schools in grade 12 on the SAT Math Reasoning Test has steadily increased over the past five years, as indicated in Table 9. The increase in mean SAT Math Reasoning Test scores is a trend similar to scores among students in Virginia and the Unites States. Table 9 also reveals that the overall participation rate in SCPS on the SAT Reasoning Test over the past five years has remained relatively constant since 2002. Data also indicated that only 40% of students in SCPS who participated in the SAT Reasoning Test had previously taken the PSAT test during Grade 10 or Grade 11.

Table 9. Math SAT Reasoning Test Mean Scores and Participation (Grade 12)

	2001		2002		2003		2004			2005					
	SC	VA	US	SC	VA	US	SC	VA	US	SC	VA	US	SC	VA	US
Mean Score	508	501	514	509	506	516	510	510	519	513	509	518	517	514	520
Participation	59%			64%			62%			63%			63%		

Source: College Board

SAT Reasoning Test participation rates were further disaggregated by ethnicity in Table 10 and compared to the ethnicity data within the school division. Unlike the data for participation in Advanced Placement exams (Table 8), this comparison indicated that participation in the SAT Reasoning Test among Black and Hispanic student subgroups was representative of the subgroups' overall student populations in grade 12. However, the Asian student subgroup has shown a gradual increase in SAT Reasoning Test participation overall while experiencing a steady decline in its representation within the overall student population in grade 12.

Table 10. Math SAT Reasoning Test Participation by Ethnicity* in SCPS (Grade 12) vs. Ethnicity of Student Population in SCPS (Grade 12)

		2001	2002	2003	2004	2005
Asian	SAT	4%	4%	5%	5%	5%
	SCPS	3%	3%	3%	3%	2%
Black	SAT	14%	16%	16%	18%	17%
	SCPS	14%	17%	17%	18%	19%
Hispanic	SAT	4%	3%	4%	5%	6%
	SCPS	3%	3%	4%	4%	5%
White	SAT	73%	73%	70%	69%	69%
	SCPS	80%	77%	75%	75%	73%

^{*}Only statistically significant ethnic groups are listed in this table. Also, not all students elect to report their ethnicity for SAT Reasoning Tests.

Sources: College Board and Virginia Department of Education

Student Mathematics Course Sequencing during Middle/High School

Mathematics transcripts for all Stafford County Public Schools (SCPS) students in grade 12 during the 2005-06 school year were analyzed to determine student mobility rates among the standard mathematics course sequences (more commonly known as "tracks" or "pathways") from grade 6 through grade 12. Each student transcript was categorized as advancing to a more challenging course pathway, remaining on the same course pathway, or descending to a less challenging course pathway.

Table 11. SCPS Mathematics Course Pathway Mobility Rates for Students in Grade 12 (2005-06)

73%
23%

Source: SCPS Comprehensive Information Management for Schools (CIMS)

Table 11 depicts the frequency of student mobility from their original mathematics course pathways. The predominant action for students in mathematics is to remain on their original pathways from grade 6 to grade 12, which occurs in almost 75% of all cases. What is equally apparent is that most of the mobility from the pathways is in the direction of less challenging mathematics coursework. Therefore, it is highly unlikely that SCPS students who are not placed in accelerated mathematics coursework in grade 6 will advance to college-level equivalency mathematics courses by the time they reach grade 12. This pathway mobility data also appears to validate the accelerated/advanced program data presented in Table 4 and Table 7, which indicated that only about 50% of the students who received accelerated mathematics instruction in middle school continued to pursue a college-level equivalency course in mathematics during high school. This course sequence analysis included only a general depiction of overall trends in student mobility among these course pathways due to the limited capabilities of the current SCPS student information management system and associated data mining tools.

Stakeholder Surveys

Surveys were administered to parents, middle and high school counselors, and teachers of mathematics who instruct students in grades 5-12 to answer the research questions relating to the quality and equity of the middle school and high school mathematics programs in the school division. The evaluation committee analyzed summary survey data, and a more detailed analysis was also completed by the Department of Accountability. Descriptive statistics (means and distribution of responses) generated for individual survey items were reviewed within the context of both research questions. Additional comparisons were conducted in cases where survey item alignment occurred among two or three of the surveys.

Parent survey details. Appendix B includes the complete results of the parent surveys. The 24-item parent survey was mailed to a random sample of 840 parents of Stafford

County Public Schools students in grades 5-12. Parents were given the option of returning a completed survey in a prepaid, self-addressed envelope or completing the survey online per the directions accompanying each survey. A total of 231 parents responded to the survey, yielding a 28% response rate. Based on this response rate, the survey results are within approximately \pm 6% of the responses of all parents of students in grades 5-12 in SCPS at a 95% confidence level.

Middle and high school counselor survey details. Appendix B includes the complete results of the middle and high school counselor surveys. All 43 Stafford County Public Schools (SCPS) middle and high school counselors were emailed through the SCPS Groupwise email system and prompted to complete the 20-item online counselor survey through a link embedded in the email. A total of 33 counselors responded to the survey, yielding a 77% response rate. Based on this response rate, the survey results are within approximately \pm 8% of the responses of all grade 6-12 counselors in SCPS at a 95% confidence level.

Mathematics teacher (grades 5-12) survey details. Appendix B includes the complete results of the mathematics teacher (grades 5-12) surveys. All 224 Stafford County Public Schools (SCPS) mathematics teachers (grades 5-12) were emailed through the SCPS Groupwise email system and prompted to complete the 35-item online teacher survey through a link embedded in the email. A total of 195 teachers responded to the survey, yielding an 87% response rate. Based on this response rate, the survey results are within approximately \pm 2.5% of the responses of all grade 5 -12 mathematics teachers in SCPS at a 95% confidence level.

Survey item analyses. Stakeholder survey data (see Appendix B) most relevant to the two research questions related to the quality and equity of the middle school and high school mathematics programs in Stafford County Public Schools (SCPS) was analyzed in the areas of student mathematics achievement, parent-teacher communication about student mathematics progress, student placement in middle and high school mathematics courses (including mathematics teacher course recommendations, mathematics course options, and course placement criteria), participation of middle school students in Algebra I, and the perceived quality and equity of the middle school and high school mathematics programs in SCPS. Additionally, several other specific survey item responses unique to teacher and/or counselor surveys supported one or both research questions in the areas of curriculum knowledge, curriculum alignment, real-world mathematics applicability, and mathematics training among staff members.

Parent/Teacher Survey Item 3 addressed stakeholder satisfaction with mathematics student achievement. While 77% of parents indicated satisfaction with their child's mathematics achievement, only 33% of teachers echoed similar sentiments about the students in their mathematics class(es). This perceptual contrast was reversed in Parent/Teacher Survey Item 6, which addressed parent-teacher communication. In Item 6, 90% of teachers indicated that they regularly provide parents with information about student progress in mathematics, yet only 48% of parents responded that they regularly receive updates about their child's progress in mathematics.

P3 I am satisfied with m	r abild's ar	unnont 1	ov.o1 o	f matl	a a a bi	011010	nt		Response	Response
13 I am saustied with in	y cimu s ci	1116111 10	evel o	ı ınan	i aciii	evenic	111.		Percent	Total
Strongly Agree									24	56
Agree									53	121
No Opinion									2	5
Disagree									19	44
Strongly Disagree									2	4
Total Respondents										230

T3 I am satisfied with m	ny mathema	tics stud	dents'	curre	ent lev	vels of	f		Response	Response
achievement.									Percent	Total
Strongly Agree									1	1
Agree									32	62
No Opinion									6	11
Disagree									55	107
Strongly Disagree									7	14
Total Respondents										195

T6 I regularly provide parents	with i	nform	ation	about	their	child'	s		Response	Response
progress in mathematics class									Percent	Total
Strongly Agree									26	51
Agree									64	124
No Opinion									6	12
Disagree									3	6
Strongly Disagree									0	0
Total Respondents										193

P6 My child's teacher regul child's progress in math class	 ides n	ne wit	h info	rmatio	on abo	out my	У		Response Percent	Response Total
Strongly Agree									14	32
Agree									34	78
No Opinion									12	28
Disagree									31	71
Strongly Disagree									9	20
Total Respondents										229

Items 4 and 8-17 on the Parent and Teacher Surveys, which align with Items 2, 3, and 5-13 on the Counselor Survey addressed mathematics course options, as well as mathematics course placement issues. Item 8 (Parent/Teacher Survey) investigated perceptions of mathematics teachers' abilities to recommend their students for the most appropriate mathematics courses for the following school year. Survey results indicated that mathematics teachers overwhelming agreed (92%) to having confidence in their own abilities to make future mathematics course recommendations for students, while parents also articulated their confidence in teachers' recommendation abilities, yet at a significantly lower level of agreement (72%). The corollary Counselor Survey item (Item 3) indicated that, like the mathematics teachers, school counselors overwhelming agreed (97%) to having confidence in their own abilities to make future mathematics course recommendations for students. However, Item 4 on the Parent/Teacher Survey and Item 2 on the Counselor Survey indicate that while 85% of counselors and 77% of parents believe that their students were appropriately placed in mathematics courses, only 38% of teachers believe that their students were appropriately placed in mathematics courses.

T8 I have confidence the			recomm	nena s	tuaents	101		Response	-
placement in their next	mathematics	ciasses.			г	1	1 1	Percent	Tota 8
Strongly Agree								43	9
Agree No Opinion	_				\vdash		 	49	
	_			+	\vdash			3	
Disagree	_			1	┢		 	0	
Strongly Disagree Total Respondents								0	19
Total Respondents									1)
			_					_	
P8 I have confidence th	-				_	y		Response	Respons
recommend him/her for	r placement i	n his/her	next m	ath cla	ass.			Percent	Tot
Strongly Agree			_		\vdash			27	1.0
Agree					\vdash			45	10
No Opinion			_	+	\vdash	_	-	18	4
Disagree				+	\vdash			8	1
Strongly Disagree								3	20
Γotal Respondents									22
C3 I have confidence th			recomn	nend s	tudents	for		Response	Respons
placement in their next	mathematics	classes.						Percent	Tot
Strongly Agree								38	1
Agree								59	1
No Opinion								0	
Disagree								3	
U									
Strongly Disagree								0	
Strongly Disagree Fotal Respondents	opropriately j	placed in	their ma	athema	atics cla	sses		Response	Respons
Strongly Disagree Total Respondents C2 My students were apbased on their mathema			their ma	athema	atics cla	sses		Response Percent	Respon
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Strongly Disagree Total Respondents C2 My students were applies on their mathema Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P4 My child was approp	priately place	5.						Response Percent 22 63 9 6 0 Response	Respon Tot
Strongly Disagree Total Respondents C2 My students were applies on their mathema Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P4 My child was approphis/her mathematical al	priately place	5.						Response Percent 22 63 9 6 0 Response Percent	Respon Tot Respon Tot Respon Tot
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Strongly Disagree Total Respondents C2 My students were appleased on their mathema Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P4 My child was approphis/her mathematical all Strongly Agree No Opinion Disagree Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T4 Students were approphisher mathematical all Strongly Agree	priately place polity.	ed in his/l	ner mat	h class	s based o	on		Response	Respon Tot
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With respect to three items that address mathematics course options (Parent/Teacher Survey Items 9-11 and Counselor Survey Items 5-7), survey results indicated that a majority of parents (62-69%), teachers (66-92%), and counselors (72-100%) understand future mathematics course options for students. Results of Item 9 (Teacher Survey) also indicated that only 65% of grade 5 mathematics teachers understand the middle school mathematics course options. Additionally, only 28% of grade 5 mathematics teachers and 72% of middle school mathematics teachers understand high school mathematics course options (Teacher Item 10).

P9 I understand the ma	th course o	ptions	that a	re avai	ilable	in the	midd	lle		Response	Response
schools.										Percent	Total
Strongly Agree										18	40
Agree										44	99
No Opinion										21	47
Disagree										15	34
Strongly Disagree										2	5
Total Respondents											225

P10 I understand the ma	ath course o	ptions	that a	are ava	ailable	in th	e high	ı		Response	Response
schools.										Percent	Total
Strongly Agree										21	47
Agree										48	107
No Opinion										12	28
Disagree										17	38
Strongly Disagree										2	5
Total Respondents											225

P11 I am aware of the m	ath course	option	ıs avail	able t	o my o	child f	for nex	xt		Response	Response
year.										Percent	Total
Strongly Agree										18	41
Agree										46	104
No Opinion										11	25
Disagree										22	50
Strongly Disagree										2	4
Total Respondents											224

T9 I understand the ma middle schools.	thematics co	ourse (ption	s that	are a	vailab	le in t	he		Response Percent	Response Total
Strongly Agree										32	62
Agree										40	76
No Opinion										6	12
Disagree										20	39
Strongly Disagree										1	2
Total Respondents											191

T10 I understand the ma	thematics o	course opt	ions tha	ıt are a	vailal	ole in	the		Response	Response
high schools.									Percent	Total
Strongly Agree									28	53
Agree									38	72
No Opinion									12	22
Disagree									17	33
Strongly Disagree									6	11
Total Respondents										191

T11 I am aware of the m students for next year.	nathematics c	ourse opu	ons avan	ubic to my		Response Percent	Tota
Strongly Agree						49	93
Agree						43	81
No Opinion						2	3
Disagree						6	11
Strongly Disagree						1	
Total Respondents							189
CE I am denote a delto acc	.41		41 4		: 41. a	D	D
C5 I understand the ma middle schools.	unematics co	urse optioi	is tiiat ai	re avaliable	in the	Response Percent	Response Tota
Strongly Agree						31	10
Agree						41	13
No Opinion						3	
Disagree						25	
Strongly Disagree						0	(
Total Respondents						l v	32
CC I 1 . 1.1		.•	.a		• .4	n.	D
C6 I understand the ma high schools.	ithematics co	urse optioi	is that ai	re available	in the	Response Percent	Respons Tota
Strongly Agree						63	20
Agree						38	12
No Opinion						0	(
Disagree			1			0	(
Strongly Disagree							(
Strongly Disagree Total Respondents						0	32
Total Respondents C7 I am aware of the m for next year.	athematics co	ourse optio	ns availa	able to my s	tudents	Response Percent	Response Tota
Total Respondents C7 I am aware of the m for next year. Strongly Agree	athematics co	ourse optio	ns availa	able to my s	tudents	Response Percent 66	Respons Tota
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree	athematics co	ourse optio	ns availa	able to my s	tudents	Response Percent 66 34	Respons Tota 2
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion	athematics co	ourse optio	ns availa	able to my s	tudents	Response Percent 66 34 0	Respons Tota 2:
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion Disagree	athematics co	purse optio	ns availa	able to my s	tudents	Response	Response Tota 27
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree	athematics co	ourse optio	ns availa	able to my s	tudents	Response Percent 66 34 0	Response Tota 22 11 ((((
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion Disagree	athematics co	ourse optio	ns availa	able to my s	tudents	Response	Respons Tota 2 11
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T9 (Grade 5) I understa	and the mathe					Response Percent 66 34 0 0 0 Response	Respons Totz 2 1 0 0 3.2 Respons
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T9 (Grade 5) I understa available in the middle s	and the mathe					Response Percent 66 34 0 0 0 Response Percent	Respons Tota 2: 1: () () () () () () () () () () () () ()
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T9 (Grade 5) I understa available in the middle s Strongly Agree	and the mathe					Response Percent 66 34 0 0 0 Response Percent 25	Response Tota 2: 1: ((((32: Response Tota 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1:
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T9 (Grade 5) I understa available in the middle s Strongly Agree Agree	and the mathe					Response	Respons Tota 2 11 (((((((((((((((((
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T9 (Grade 5) I understate available in the middle selection of the selecti	and the mathe					Response	Respons Tota 2 11 0 0 32 Respons Tota 11 2
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Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T9 (Grade 5) I understa available in the middle selection of the selection	and the mathe					Response	Respons Tota 2 1 ((((((((((((((((((
Total Respondents C7 I am aware of the m for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T9 (Grade 5) I understa	and the mathe					Response Percent	Respons Tota 2 1 ((((((((((((((((((
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T10 (Middle) I understand	the math	iemati	cs cou	ırse oj	otions	that a	are		Response	Response
available in the high school	s.								Percent	Total
Strongly Agree									26	18
Agree									46	32
No Opinion									10	7
Disagree									14	10
Strongly Disagree									3	2
Total Respondents										69

Additionally, only 68-70% of the staff stakeholders most directly associated with the middle school mathematics program, grade 5 mathematics teachers and middle school mathematics teachers and counselors, indicated familiarity with middle school mathematics entrance course placement criteria, while only 31% of parents with students in grade 5 or grade 6 indicated familiarity with middle school mathematics entrance course placement criteria, as displayed in Parent/Teacher Survey Item 12 and Counselor Survey Item 8. Furthermore, among the stakeholders who indicated familiarity with middle school mathematics course placement criteria, 56% of middle school mathematics teachers, 28% of grade 5 mathematics teachers, and 8% of parents indicated that middle school mathematics course placement criteria are not applied consistently, as seen in Parent/Teacher Survey Item 13.

T12 (Grade 5) I am familimath classes when entering		d to p	lace s	tuden	ts in		Response Percent	Response Total
Strongly Agree							25	16
Agree							43	28
No Opinion							2	1
Disagree							29	19
Strongly Disagree							2	1
Total Respondents								65

T12 (Middle) I am familiar w	ith the	criteri	a used	d to pl	ace st	udent	s in m	nath		Response	Response
classes when entering middle	school									Percent	Total
Strongly Agree										21	14
Agree										47	32
No Opinion										6	4
Disagree										25	17
Strongly Disagree										1	1
Total Respondents											68

C8 (Middle) I am familiar classes when entering mid		used	to pla	ce stu	dents	in ma	ath		Response Percent	Response Total
Strongly Agree									30	3
Agree									40	4
No Opinion									10	1
Disagree									20	2
Strongly Disagree									0	0
Total Respondents										10

P12 (Grades 5-6) I am far	niliar with 1	the crite	eria use	l to plac	e stud	lents i	n		Response	Response
math classes when entering	ng middle s	chool.							Percent	Total
Strongly Agree									8	6
Agree									23	17
No Opinion									21	15
Disagree									38	28
Strongly Disagree									10	7
Total Respondents										73

T13 (Middle) The criteria	used to pla	ace st	udent	s in m	ath cl	asses	when		Response	Response
entering middle school ar	e consisten	tly ap	plied.						Percent	Total
Strongly Agree									2	1
Agree									28	13
No Opinion									13	6
Disagree									43	20
Strongly Disagree									13	6
Total Respondents										46

T13 (Grade 5) The criteria used	d to pl	ace st	udent	s in m	ath c	lasses	when	Į.		Response	Response
entering middle school are con	sisten	tly app	olied.							Percent	Total
Strongly Agree										11	5
Agree										36	16
No Opinion										25	11
Disagree										23	10
Strongly Disagree										5	2
Total Respondents											44

P13 The criteria used to p	lace stude	nts in	math	classe	s whe	n ent	ering		Response	Response
middle school are consiste	ently appli	ed.							Percent	Total
Strongly Agree									15	15
Agree									41	40
No Opinion									35	34
Disagree									7	7
Strongly Disagree									1	1
Total Respondents										97

In terms of mathematics course placement decisions, 84% of counselors and 57% of mathematics teachers indicated that they actively involve parents in mathematics placement decisions, while 52% of parents indicated that they are actively involved in these decisions, as depicted in Counselor Survey Item 11 and Parent/Teacher Survey Item 15. Also, though 65% of parents indicated that they should be able to select their child's mathematics courses, only 41% of counselors and 21% of mathematics teachers supported parental mathematics course selection (Parent/Teacher Survey Item 16 and Counselor Survey Item 12). Similar results were reported with respect to student selection of mathematics courses, which was supported by 55% of parents, 47% of counselors, and 31% of mathematics teachers (Parent/Teacher Survey Item 17 and Counselor Survey Item 13).

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No Opinion	No Opinion Disagree Strongly Disagree Fotal Respondents F15 I actively involve parents in affect their children. Strongly Agree Agree No Opinion Disagree Strongly Disagree Fotal Respondents P15 I am actively involved in the child. Strongly Agree Agree			ics pla	cement	t decis	ions t	hat	13 3 0 Response Percent 15 42	3 Respons Tota
Disagree	Disagree Strongly Disagree Fotal Respondents F15 I actively involve parents in affect their children. Strongly Agree Agree No Opinion Disagree Strongly Disagree Fotal Respondents P15 I am actively involved in the child. Strongly Agree Agree			ics pla	cement	decis	ions t	hat	Response Percent 15 42	3 Respons Tota
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Response	T15 I actively involve parents in affect their children. Strongly Agree Agree No Opinion Disagree Strongly Disagree Fotal Respondents P15 I am actively involved in the child. Strongly Agree Agree			ics pla	cement	decis	ions t	hat	Percent 15 42	Respons Tota
Trongly Disagree 5 Total Respondents Respondents Pl6 I should be able to choose my child's math classes. Percent Total Respondents Response Percent Total Respondents Agree 1 16 Agree 1 17 Agre				ent dec	cisions	that at	ffect n	ny	20 1 Response Percent 23 39	4 3 19 Respons Tota 5 8
Trongly Disagree 5 Total Respondents Respondents Pl6 I should be able to choose my child's math classes. Percent Total Respondents Response Percent Total Respondents Agree 1 16 Agree 1 17 Agre				-	+ +	-				4
Cotal Respondents Pl6 I should be able to choose my child's math classes. Response Percent To trongly Agree Agree No Opinion Disagree Cotal Respondents Percent To the percent To t				-	+ +					1
Agree 44 No Opinion 18 Disagree 16 Original 18 Disagree 16 Original 16 Original 16 Original 16 Original 16 Original 17 Original 18 Origina		my chile	d's matl	h class	es.				Percent	Respons Tota
No Opinion			_	_	-					4
Disagree 16 Atrongly Disagree 1 1 Cotal Respondents 2 C12 Parents should be able to choose their children's mathematics classes. Response Respondents Total Response Respondents 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1										9
trongly Disagree 1 1 Cotal Respondents 2 C12 Parents should be able to choose their children's mathematics classes. Response Response Percent Total Response Respons			_						 	4
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C12 Parents should be able to choose their children's mathematics classes. Response Response Trongly Agree Outrongly Agree Agree 41									1	
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No Opinion 6							-			1
										1
									- i	1
									6	3
	C12 Parents should be able to ch Strongly Agree	hoose t	heir chi	ldren's	mathe	matics	s class	ses.		ercent 0
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Disagree 47	Disagree								47	
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trongly Disagree 6	trongly Disagree								6	
									6	
otal Respondents	otal Respondents									

P17 My child should be	able to choo	see hie	/hor	math a	lacco				Response	Response
117 Way emila should be	abic to cho)SC 1115	/ HCI I	maum (iassc	٠.			Percent	Total
Strongly Agree									15	34
Agree									40	90
No Opinion									13	29
Disagree									29	66
Strongly Disagree									3	7
Total Respondents										226

C13 Students should be a	blo to abor	soo tha	in 01171	a matl	annat	ios ala	20000		Response	Response
C13 Students should be a	DIE 10 CHOC	ise the	ii owi	ii iiiau	iciliai	ics cia	15505.		Percent	Total
Strongly Agree									0	0
Agree									47	15
No Opinion									3	1
Disagree									47	15
Strongly Disagree									3	1
Total Respondents										32

T17 Students should be	abla ta abaa	oo tho	ie 0117	n matl	aomat	ion al	20000		Response	Response
117 Students should be a	able to choo	se me	II OWI	i iiiau	iciliai	ics ci	asses.		Percent	Total
Strongly Agree									2	3
Agree									29	54
No Opinion									12	23
Disagree									49	91
Strongly Disagree									9	16
Total Respondents										187

Another area briefly explored by the surveys was participation of middle school students in a high school Algebra I course. Parent/Teacher Survey Item 21 and Counselor Survey Item 17 indicate a general sentiment shared among all surveyed stakeholders that not all students can successfully complete a high school level Algebra I course in middle school.

P21 All students are capable of	succe	essfull	y com	pletin	ıg a hi	gh sc	hool le	evel		Response	Response
Algebra I class in middle school	1.									Percent	Total
Strongly Agree										7	15
Agree										26	59
No Opinion										17	39
Disagree										43	96
Strongly Disagree										7	16
Total Respondents											225

T21 All students are capab	le of succ	essfull	ly com	pletir	ig a hi	igh sc	hool l	evel		Response	Response
Algebra I class in middle so	chool.									Percent	Total
Strongly Agree										5	9
Agree										12	22
No Opinion										6	11
Disagree										48	91
Strongly Disagree										30	57
ted 1 m											

Total Respondents 190

C17 All students are capable of	succe	essfull	y com	pletin	ıg a hi	igh sc	hool l	evel			Response	Response		
Algebra I class in middle school	1.										Percent	Total		
Strongly Agree	9.9													
Agree											9	3		
No Opinion											0	0		
Disagree											63	20		
Strongly Disagree											28	9		
Total Respondents												32		

The last significant survey results from all stakeholder surveys relate directly to stakeholder perception of the quality and equity of the mathematics program in SCPS. With respect to the equity research question, 80% of counselors and 71% of mathematics teachers indicated that the SCPS mathematics program challenges all students, while only 51% of parents indicated that the SCPS mathematics program challenges all students (Counselor Survey Item 19 and Parent/Teacher Survey Item 23). Regarding the quality research question, 81% of counselors indicated that the SCPS mathematics program adequately prepares students for mathematics courses after high school, yet only 59% of mathematics teachers and 52% of parents indicated that the SCPS mathematics program adequately prepares students for mathematics courses after high school (Counselor Survey Item 20 and Parent/Teacher Survey Item 24).

C19 The mathematics program	in Sta	afford	Coun	ty Pul	blic So	chools			Response	Response
challenges all students.									Percent	Total
Strongly Agree									17	5
Agree									63	19
No Opinion									13	4
Disagree									3	1
Strongly Disagree									3	1
Total Respondents										30

T23 The mathematics pro	ogram in S	taffor	d Cou	nty Pu	blic S	chool	s		Response	Response
challenges all students.									Percent	Total
Strongly Agree									9	16
Agree									62	117
No Opinion									14	26
Disagree									13	24
Strongly Disagree									3	5
Total Respondents										188

P23 The math program is students.	in Stafford	Cou	unty	Publi	ic Sch	ools c	haller	iges a	11		Response Percent	Response Total
Strongly Agree											8	17
Agree											43	97
No Opinion											37	83
Disagree											12	26
Strongly Disagree											1	3

Total Respondents 226

C20 The mathematics program	n in St	afford	Cour	ity Pu	blic S	chools	3			Response	Response
adequately prepares students for	or mat	hema	tics co	ourses	after	high s	school	l.		Percent	Total
Strongly Agree										22	7
Agree										59	19
No Opinion										6	2
Disagree										13	4
Strongly Disagree										0	0
Total Respondents											32

T24 The mathematics program	n in St	afford	Cour	ty Pu	blic S	chools	3			Response	Response
adequately prepares students for	or mat	hema	tics co	ourses	after	high s	school	1.		Percent	Total
Strongly Agree										11	20
Agree										48	90
No Opinion										30	57
Disagree										9	16
Strongly Disagree										2	4
Total Respondents											187

P24 The math program i prepares students for materials	•		ools a	dequ	ately		Response Percent	Response Total
Strongly Agree							10	22
Agree							42	94
No Opinion							40	90
Disagree							7	16
Strongly Disagree							1	3
Total Respondents								225

A number of additional survey items were administered to mathematics teachers and/or counselors only. In the area of curriculum knowledge and alignment, 78% of mathematics teachers indicated that Stafford County Public Schools has a written curriculum for the mathematics courses they teach and 93% of mathematics teachers know what specific information students need to learn to meet course learning objectives (Teacher Survey Items 25 and 27). Also, 81% of mathematics teachers give students opportunities to explore openended and non-routine mathematics problems (Teacher Survey Item 30).

T25 The school division has a	writte	n curr	iculur	n for e	each o	f the			Response	Response
mathematics classes I teach.									Percent	Total
Strongly Agree									23	43
Agree									55	104
No Opinion									6	11
Disagree									13	24
Strongly Disagree									4	7
Total Respondents										189

T27 I know what specific learning objectives for eathat I teach.					Response Percent	Response Total
Strongly Agree					31	58
Agree					62	117
No Opinion					2	4
Disagree					5	10
Strongly Disagree					0	0
Total Respondents						189

T30 I give students opportunit problems and to experience the the world around them.	•	-				Response Percent	Response Total
Strongly Agree						22	41
Agree						59	111
No Opinion						9	16
Disagree						10	19
Strongly Disagree						0	0
Total Respondents							187

Finally, Teacher Survey Item 32 and Counselor Survey Item 4 explored the personal mathematics history of staff involved in mathematics placement decisions. Specifically, these survey items indicated that only 50% of mathematics teachers and 26% of counselors successfully completed a college-level Calculus course in either high school or college. Additional information regarding the undergraduate and graduate backgrounds of grade 5-12 mathematics teachers in Stafford County Public Schools is listed in the graphics below.

T32 I successfully completed a college-level Calculus class in high school										Response	Response	
(e.g. Advanced Placement)) or colleg	e.									Percent	Total
Strongly Agree											37	70
Agree											13	25
No Opinion											8	15
Disagree											27	50
Strongly Disagree											14	27
Total Respondents												187

C4 I successfully completed a college-level Calculus class in high school										Response	Response	
(e.g. Advanced Placement) or o	ollege	: .									Percent	Total
Strongly Agree											13	4
Agree											13	4
No Opinion											16	5
Disagree											25	8
Strongly Disagree											34	11
Total Respondents												32

Number of Credit Hours of Mathematics Coursework Completed for	Response	Response	
Undergraduate Degree		Percent	Total
0 - 12		44	86
13 - 21 (or Mathematics Minor)		21	40
22 - 33		9	17
More than 33 (or Math Undergrad)		27	52
Total Respondents			195

Number of Undergraduate or Graduate Level Mathematics Courses									Response	Response	
Completed since Undergradua	te Deg	ree								Percent	Total
0 - 1										39	75
2 - 3										27	52
4 - 5										12	23
6 - 7										9	17
8 - 9										3	5
10 - 11										3	5
12 - 13										4	7
More than 13										5	10

Total Respondents 194

Focus Group Analyses

Six stakeholder focus groups were conducted to answer the two research questions relating to the quality and equity of the middle school and high school mathematics programs in the school division. The six focus groups were composed of the following stakeholders:

Group #1: Students in Grade 12

Group #2: Parents of Students in Grades 5-12

Group #3: Elementary and Middle School Mathematics Teachers

Group #4: High School Mathematics Teachers

Group #5: Higher Education and Community

Group #6: Principals and Assistant Principals

Subcommittees from the evaluation committee analyzed focus group data for Groups 1-5, while data from Group #6 was analyzed by the Department of Accountability. All six focus group data analyses were then shared with the evaluation committee.

Group #1: Students in Grade 12

The Student Subcommittee targeted students in grade 12, as well as recent Stafford County Public Schools (SCPS) graduates, as participants in the focus group. The Student Subcommittee also attempted to select participants who had attended school in SCPS continuously since at least grade 5 and to make the student focus group diverse with respect to participant gender, ethnicity, disability status, high school attended, and terminal mathematics course completion/participation.

Eight student participants in grade 12 represented three high schools in SCPS. Four of the eight participants were female, and four were male. Five of the eight participants were White, and three represented ethnic minority groups. The Student Subcommittee did not elect to ask participants to articulate their disability status. All eight participants were currently enrolled in a mathematics course. Six of the eight participants were currently enrolled in an Advanced Placement (AP) Calculus course, either AP Calculus AB or AP Calculus BC. Two of those six participants were also currently enrolled in AP Statistics. One of the eight participants was currently enrolled in Algebra III w/Trigonometry, while another participant was currently enrolled in Algebra II. Four of the eight participants had attended school in SCPS continuously since at least grade 5.

Most of the data collected at the student focus group pertained to the equity research question. First, participants were cognizant of their mathematics track or "pathway" in middle school and high school since grade 4 or grade 5, but participants did not feel that they had any control over their pathway. Second, participants were cognizant of ability grouping for mathematics instruction during grade 4 and grade 5. Participants claimed that this grouping, which also determined a participant's middle school and high school mathematics pathway, was based on being identified as academically gifted ("Focus"), scoring well on a school-wide mathematics common assessment at the beginning of grade 5, and/or being recommended by their teacher. Also, most of the participants who were enrolled in an AP Calculus class articulated that they believed the mathematics program in

Stafford County Public Schools was very strong, especially in the accelerated pathway courses.

Only two of the eight participants changed their mathematics pathway during their middle or high school years. One participant, a Black male who transferred into SCPS at the beginning of grade 9, switched from Algebra I to Algebra I, Part I during grade 9. This student felt that this switch helped him understand mathematics content better. A second participant, a White female who transferred into SCPS during grade 10, was placed in Algebra II for grade 10 and earned consistent "A" grades in the Algebra II course. This participant then switched pathways and took Math Analysis during grade 11. This participant articulated that her decision to take Math Analysis in grade 11 was based on the recommendation of her grade 10 Algebra II teacher and encouragement from her parents, whom she described as "hardcore education." In a third case, a participant who was a Hispanic female, also earned consistent "A" grades in Algebra II while in grade 11. However, this participant remained on her mathematics pathway in grade 12 by taking Algebra III w/Trigonometry. This participant articulated that her decision to take Algebra III w/Trigonometry in grade 12 was based on the recommendation of the grade 11 Algebra II teacher. She also stated that her parents were neither interested nor involved in any of her educational course selections. This student later remarked that she and her Algebra II teacher jointly decided to enroll her in Algebra III w/Trigonometry, based also on her overall schedule, which included two Dual Enrollment courses.

Group #2: Parents of Students in Grades 5-12

The Parent Subcommittee asked each school with grades 6-12 to submit a name of a parent to participate in the focus group. The parent focus group also included parents that serve on the following Stafford County Public Schools (SCPS) advisory committees: Gifted, Special Education, and Career and Technical Education. The twelve parents represented a cross-section in terms of their children's abilities and interests with their children participating in the special education program, the regular education program, the gifted program, and the Career and Technical Education program.

With respect to the quality research question, most of the parents believed that the SCPS mathematics program does a good job of preparing advanced-level students for success at the collegiate level. However, many parents questioned the quality of instruction based on the competency of teachers, especially in the elementary and middle school levels, and many also expressed the belief that lower-level mathematics courses are not taught by the most qualified teachers. Additionally, some parents questioned whether mathematics teachers were evaluated in a rigorous way.

In terms of the equity research question, many of the parents expressed that the courses in the accelerated pathway were rigorous, but they also questioned why enrollment in advanced courses was not more ethnically diverse. Also, though many of the parents were aware that the mathematics program included instructional pathways adapted to the abilities of their children, many also spoke of an "information gap" that was the result of inadequate presentation of the mathematics pathways and courses, largely because much of the language used in the course catalogs was not easily understandable by the lay person or parents. Additionally, many parents expressed the belief that each of the schools, and even

counselors and teachers within each school, interprets mathematics course placement criteria differently when selecting mathematics courses for students, especially in the transition from grade 5 to grade 6 and from grade 8 to grade 9.

Group #3: Elementary and Middle School Mathematics Teachers

Members of the evaluation steering committee coordinated teacher participants in the Elementary and Middle School Mathematics Teachers focus group. Participants included seven mathematics teachers who work with students in grades 5-8 and one middle school special education teacher.

In terms of the quality research question, participants articulated several thoughts about the Stafford County Public Schools (SCPS) Grade 5 Mathematics program, as the entry point into the three middle school mathematics pathways. Most of the elementary teachers indicated that all grade 5 elementary school teachers teach all of the core academic subjects, including mathematics, though grouping of students for mathematics instruction may be heterogeneous or homogeneous, depending on the school. At the schools that grouped by ability, test scores and grade 4 teacher recommendation were used to determine the grouping. In many cases, the gifted ("Focus") teacher pulled out small groups of selected students to work with advanced problem solving. In middle schools, participants indicated that teachers generally work as part of an interdisciplinary team ranging from 2-5 teachers, which always includes a mathematics teacher. Grouping for mathematics is typically accomplished by student assignments to interdisciplinary teams.

Elementary teacher participants stated that they follow the SCPS criteria for placement of students into one of the three grade 6 mathematics pathways, with work habits and Mathematics Standards of Learning (SOL) test scores being the most important criteria. One elementary teacher also expressed the desire to allow borderline students to pursue more rigorous courses. Teachers perceived that placements were generally objective but that borderline placements were largely subjective. All participants articulated how difficult it was to place students with strong work habits but low to average mathematical abilities. They also stated that placement decisions were influenced by parents, some of whom believe that accelerated courses are too hard and do not want to put their students in these courses. Another participant indicated that using grades was problematic for placement purposes because grades meant different things for different teachers. Additionally, several middle school teachers voiced concerns about the readiness of students going into the accelerated pathway in grade 6 ("Extended Math 6"), while several also indicated that Grade 5 Mathematics SOL test scores are typically a good indicator for placement into advanced classes. These teachers further articulated that students scoring below 450 on the Grade 5 Mathematics SOL test are usually not successful in Extended Math 6, while those scoring above 525 are generally successful. All stated that the lack of standard mathematics assessments other than the Grade 5 Mathematics SOL test made it difficult to accurately place students in mathematics courses during grade 6.

With regards to the student transition in mathematics from grade 5 to grade 6, middle school teachers stated that grade 6 mathematics teachers have the option of moving students among the three course pathways after they begin grade 6, but that any movement is usually in the direction of a less rigorous course, while one middle school teacher indicated that

students generally could not handle the pacing of the accelerated pathways. The middle school mathematics summer "Bridge" program was generally embraced as a good way for students to advance to more challenging pathways and beneficial especially for students who were new to the school division. Middle school teachers also indicated that placement after grade 6 was not an issue as students followed the pathway and that they used the county criteria for placement into mathematics courses at grade 9. Teachers did indicate that there was some subjectivity in all of these placements.

Finally, participants indicated that communication to parents about the mathematics pathways and the transition in mathematics from grade 5 to grade 6 was accomplished through evening meetings at the elementary schools and written information mailed to parents. Middle schools also have communicated to parents through meetings with middle school counselors and presentations at rising grade 6 orientations, as well as open houses and back-to-school nights.

Group #4: High School Mathematics Teachers

Members of the evaluation steering committee coordinated teacher participants in the High School Mathematics Teachers focus group. Participants included four mathematics teachers representing four high schools in Stafford County Public Schools (SCPS).

With respect to the research question regarding quality, participants felt that the high school mathematics program in SCPS is very effective with students in the most advanced and the most remedial course pathways, somewhat due to smaller class sizes for many courses on these two pathways, but that the program is much less effective with the rest of the students, who represent the majority of high school students. They then continued this observation by stating that students who will be entering trade schools seem to be prepared for those jobs and that students at "higher levels" prepare themselves mathematically for careers and higher education, but that other college-bound students are not prepared for college mathematics courses. Participants also stated that SCPS does not fully prepare students for the rigor of mathematics for college and the future, largely because passing Standards of Learning (SOL) tests has become the primary focus for mathematics teachers and students, and only a minimal understanding of mathematics is required to pass a mathematics SOL test.

In terms of the equity of the mathematics program in SCPS, participants indicated that the mathematics course pathways are relatively rigid, with little opportunity for students to move to a more challenging pathway. Teachers will occasionally encourage a strong student to move to a higher pathway, which may include taking a summer school course with required tuition, but movement to a less rigorous pathway is much more common, and often results from a student requesting the change. Additionally, participants extensively described the mathematics course selection processes during high school, stating that mathematics teachers must sign a student's course selection document to endorse the requested mathematics course and that each teacher has the responsibility to discuss course selections with students. Past high school mathematics performance, teacher recommendation, and parent request play strongly into placement decisions, but participants do not think that that process necessarily places students appropriately. There also seemed to be a sentiment among participants that only students who are intending to pursue mathematics or science

careers should be taking advanced mathematics courses, and a resentment that parents are not considering their child's intended career choice when requesting placement in an advanced mathematics course. Additionally, there was broad consensus that students should be offered the opportunity to take the high school Geometry course over a two-year sequence in lieu of the current remedial one-year Geometry with Applications course.

Also, in terms of the specific placement of students entering high school in grade 9, participants indicated that the middle school recommendations are the primary driver of these placements. However, another participant indicated that high schools mathematics teachers review the middle school course recommendations for students in their classes and will challenge them in cases where the recommendation is not supported by information in the student's file. In these cases, high school teachers contact parents, share their concerns about grade 9 placement with parents, and let the parent decide if they want to change the grade 9 placement. With respect to the middle school mathematics program, one participant indicated that too many students are pushed to higher levels of mathematics during middle school without the appropriate developmental level or reasoning abilities.

Group #5: Higher Education and Community

The College/Community and Administrator Subcommittee targeted mathematics professors from community colleges and universities and representatives from area businesses as participants in the focus group. The College/Community Subcommittee also attempted to select participants who work with graduates of Stafford County Public Schools (SCPS). Additionally, the College/Community Subcommittee attempted to make the college/community focus group diverse with respect to types of institutes of higher learning and types of businesses represented. Requests for participants were emailed to several area colleges, universities, and businesses. Four of the seven participants were representatives of businesses: two local grocery store managers, one non-profit management representative, and one physicist at a communication corporation. Three of the seven participants were lecturers or professors at colleges or universities in Virginia: Northern Virginia Community College, Virginia Commonwealth University, and University of Mary Washington.

This focus group was designed to specifically assess the quality of the mathematics program in SCPS in terms of student readiness for mathematics after graduating from high school. Due to the variety of participants, responses are being reported in three participant categories, all participants, community participants (representing businesses), and participants from higher education (university/college/community college professors).

In terms of practical mathematics knowledge, all participants articulated that students must be able to think quantitatively and relate math skills to real-world applications in order to be successful after high school, and that many high school graduates lack the ability to put mathematics problems into the context of relevant everyday applications, to include solving problems logically and translating English into mathematical expressions. Participants perceived that a major barrier to the mathematical abilities of high school graduates are instructional methods that emphasize learning mathematical concepts in small chunks that are isolated from other mathematical concepts and other content areas. Additionally, participants indicated that many high school graduates carry a negative attitude about mathematics and have accepted the premise that being weak in mathematics is fine. With

respect to specific skills, all participants stated that although students were exposed to percentages in middle school, many high school graduates do not seem to have a conceptual understanding of percentages. Participants also indicated that training with computer programs such as MATLAB and Mathcad can be beneficial for some careers and higher education. Lastly, in terms of course offerings, participants indicated that the mathematics course sequence offered in high school should go through at least Calculus.

In addition to the observations of all participants, those who represented businesses reported that college graduates usually have the necessary mathematics skills for employment, but that high school graduates do not generally have the mathematical skills required for their job, despite the fact that the level of mathematics knowledge necessary to be successful does not typically exceed the high school mathematics curriculum. Several of the basic skills that participants identified as lacking among many employees include counting money, making change, using percentages, and understanding the math calculations used in simple computer programs (such as formulas in Microsoft Excel). Participants further stated that employees with better mathematics skills are more reliable and tend to have greater job security, while employees without fundamental mathematics skills impede their own careers, as a lack of mathematics ability can hinder potential promotions. Additionally, businesses are adversely impacted by employees who lack mathematics skills, as budgets and inventories that are incorrectly computed and managed prove costly.

Higher education participants stated that students entering college Calculus are generally better prepared than they were 10-20 years ago, especially those with a solid understanding of trigonometry, but that many students have difficulty understanding the real-world connections in Calculus. However, they also stated that too many students enter college without specific mathematics skills necessary to be successful in college mathematics courses, such as basic algebraic skills (including the quadratic formula and long division of polynomials), written and oral mathematics vocabulary usage, fractions, percents, word problems, and interpretation of graphs. Many of the skills that students lack are actually those learned during middle school mathematics courses, and participants believe this might be caused by too many students learning Algebra during middle school. Finally, participants stated that high school students enrolled in Advanced Placement (AP) Calculus should either earn scores of 4 or 5 on AP exams or retake a Calculus course in college.

Group #6: Principals and Assistant Principals

The Department of Accountability randomly selected one principal and one assistant principal from each school level (elementary, middle, and high) in Stafford County Public Schools (SCPS) for participation in this focus group. Three of the participants were principals, one from each school level (elementary, middle, and high). Three of the participants were assistant principals. Each of the administrators was from a different school. The administrative experience of the participants ranged from less than one year to over 12 years. Several of the administrators had previous experience as teachers and/or administrators at multiple school levels.

In terms of the quality research question, participants articulated that all grade 5 elementary school teachers teach all of the core academic subjects, including mathematics, though grouping of students for mathematics instruction may be heterogeneous or homogeneous,

depending on the school. In some cases, the gifted ("Focus") teacher pulls out small groups of selected students to work with advanced problem solving, and these students are generally targeted for the two-year acceleration pathway during grade 6. In middle schools, participants indicated that teachers generally work as part of an interdisciplinary team ranging from 2-5 teachers, which always includes a mathematics teacher, but that the practice of scheduling mathematics instruction across teams varied among schools. High schools offered a variety of defined mathematics courses, but had the flexibility to tailor remedial instruction to meet student needs, with more remediation options available at the schools with block scheduling.

With regards to placement, all participants agreed that the grade 6 mathematics placement was the most important factor in determining a student's high school mathematics course sequence, as movement among pathways was considered rare after grade 6, especially in the direction of more challenging mathematics courses, with the exception of the middle school mathematics summer "Bridge" program and potential opportunities at high schools operating on a block schedule. High school administrators also stated that if students do not take accelerated mathematics courses in middle school, they will not get to Math Analysis and Advanced Placement (AP) mathematics classes during high school. Further, high school administrators indicated that students may not get into the college or university of their choice because they did not have opportunities to enroll in AP mathematics classes during high school. Additionally, high school administrators suggested that elementary schools need to do a better job of communicating with parents about this long-term impact for students based on their grade 6 mathematics course placement, and they also questioned how knowledgeable middle school counselors were about the high school mathematics course pathways.

Elementary administrators stated that there is confusion at elementary schools about this grade 6 placement. Elementary principals also indicated that the placement criteria that the elementary schools receive from SCPS are ineffective for several reasons. First, grade 5 SOL test results, which are a major placement factor, do not arrive in time to impact the placement decision. Second, both elementary and middle school participants do not feel that the Grade 4 Mathematics SOL Predictor Test is a valid indicator of potential student success in advanced mathematics courses. As a result, teacher recommendation is typically the primary factor in making grade 6 placement decisions, and teachers are often reluctant to recommend students for accelerated instruction during middle school.

From the perspective of middle school administrators, the grade 6 teachers are often unaware of how students were placed into grade 6 mathematics courses and they often question the validity of the written placement criteria. There is also a perception that SCPS deliberately withholds information about students who have been considered for the two-year acceleration pathway during grade 6 and have taken a placement test developed, scored, and analyzed by SCPS division-level staff. Additionally, middle school administrators shared that parents often impact placement decisions by either requesting a less rigorous course to improve the chance of a student earning an "A" grade or by requesting a more rigorous course. In either scenario, the parent request is typically honored by the principal or endorsed by SCPS in cases where the principal has denied the request and the parent has appealed the decision to SCPS at the school division level. However, middle school administrators also stated that the advanced pathway can be an effective choice when

parents request the more rigorous course for students who are on the borderline of the placement criteria. Further, they indicated that many parents are reluctant to move their children to a less rigorous mathematics course when the student is earning a grade of "D" or "F" in the advanced course. Finally, middle school administrators feel that the introduction of mathematics SOL tests in grades 4, 6, and 7 starting in 2006 will assist with future student mathematics placements.

In terms of the quality and equity research questions, all participants agreed that an effort should be made to increase the number of students in advanced mathematics courses and that that effort needs to begin in elementary school and continue through middle school and high school. High school administrators also stated that more students could be taking AP courses in mathematics, but that increasing enrollment could potentially decrease AP exam performance for the school and school division. Additionally, high school administrators indicated that students should be offered the opportunity to take the high school Geometry course over a two-year sequence in lieu of the current remedial one-year Geometry with Applications course.

Findings

Research Question #1: "Quality"

This evaluation utilized both quantitative and qualitative data analyses in order to determine how the middle school and high school mathematics programs in Stafford County Public Schools (SCPS) prepare graduates for the rigors of post-secondary mathematics courses. The combination of these data analyses yielded several significant conclusions about the overall quality of the mathematics program in SCPS.

Overall, the middle school mathematics program has successfully achieved strong mathematics Standards of Learning (SOL) test scores over the past several years, despite the fact that grade 5 students in the school division have not entered middle school with strong overall SOL test scores. The high school mathematics program has also demonstrated strength and consistency in its SOL and SAT mathematics test scores, but it has displayed a severe deficit in college-level equivalency participation and performance, indicating that SOL minimum standards may be creating a culture of mathematics mediocrity that is not challenging the majority of students to garner the mathematical skills they need to be successful in post-graduation employment or college mathematics courses. This apparent culture of mediocrity is evidenced by the fact that only half of the students who enter high school on an accelerated mathematics course pathway enroll in a college-level equivalency mathematics course, which is reinforced by an apparent belief among high school mathematics teachers that these mathematics college-level equivalency courses are only appropriate for students who wish to pursue mathematics-related fields in college. Furthermore, even those select students who have elected to pursue these college-level equivalency courses are performing well below state or national averages on Advanced Placement exams in mathematics. Despite these obvious deficiencies, many stakeholders perceive that the strength of the high school mathematics program lies in the advanced pathway, which highlights just how deeply ingrained this culture of mediocrity is embedded within the SCPS high school mathematics community.

In spite of the relatively low numbers of high school students enrolled in college-level equivalency mathematics courses in SCPS, and the barriers to increased participation in these courses within SCPS high schools, all stakeholders agree that the grade 5 to grade 6 mathematics transition is the most critical factor in determining whether or not a student will potentially reach a college-level equivalency course in mathematics by grade 12. With regards to this transition, there is clearly a lack of understanding about the long-term impact of the grade 6 mathematics placement among parents, teachers, and administrators of students in grades 5 and 6, as well as middle school counselors. These stakeholder groups also need clearer explanations of the mathematics pathways in SCPS and the placement criteria, which are largely ineffective because they place too much emphasis on the recommendation of teachers in grade 5. Further, the lack of broad mathematical training among grade 5 teachers, middle school teachers, and middle school counselors may limit their abilities to make appropriate mathematics course recommendations.

Research Question #2: "Equity"

This evaluation utilized both quantitative and qualitative data analyses in order to determine if and why an "opportunity gap" exists within the Stafford County Public Schools (SCPS) middle school and high school mathematics programs. The combination of these data analyses yielded several significant conclusions about the overall equity of the mathematics program in SCPS.

The data analyzed in this evaluation revealed a clear opportunity gap within the high school mathematics program. In spite of the relative strength of Black students and Hispanic students scoring "Advanced Proficient" on Math 8 and High School Mathematics SOL tests, Black students and Hispanic students are severely underrepresented in Advanced Placement (AP) mathematics courses. This underrepresentation of Black students and Hispanic students in AP mathematics courses is also inconsistent with SAT Reasoning Test data, which indicates that Black student and Hispanic student participation is representative of the overall student population among those two subgroups.

Additionally, data on other student subgroups, including students with disabilities, students who are economically disadvantaged, and students with limited English proficiency, has highlighted other strengths and weaknesses of the mathematics program. In grade 5 the mathematics performance of subgroups only amplifies the overall grade 5 mathematics weaknesses in the school division and contains some of the largest subgroup performance disparities. There are also weaknesses in high school mathematics performance among students with disabilities and students who are economically disadvantaged, as well as among middle school students with disabilities and students with limited English proficiency. However, mathematics performance among high school students with limited English proficiency has been relatively strong.

Other Findings

As with any evaluation, significant findings that exceeded the focus of the two research questions emerged from this study. First, the Stafford County Public Schools (SCPS) Comprehensive Information Management for Schools (CIMS) student information management system allows too much flexibility within each middle school and high school in terms of mathematics course nomenclature. As a result, course names and numeric codes within the CIMS are not standard, making any reasonable mining of data impractical, if not impossible. For example, the CIMS currently lists over 80 separate names for the "Algebra I" course. Second, the CIMS itself has limited data mining capabilities and therefore makes instructional program evaluations extremely challenging. For example, the data compiled in Table 11 of this report required programming a special subroutine within CIMS in order to print over 1800 grade 12 student transcripts, which were then analyzed by hand to calculate the final results. Third, though not the primary focus of this evaluation, the survey and focus group data indicated that parents and teachers hold vastly different views about the effectiveness of parent-teacher communication about student progress in mathematics in SCPS. Finally, there was strong consensus among high school mathematics teachers and high school administrators regarding the need for a two-year Geometry course sequence for struggling students to replace Geometry with Applications, a one-year remedial Geometry course.

Recommendations

Based on the major findings of this evaluation, the following recommendations are included as the means to improve both the quality and equity of the middle school and high school mathematics programs in Stafford County Public Schools:

- 1. Standardize all mathematics courses (including standardizing course nomenclature within the student information management system) and revise the middle school and high school mathematics pathways document to reflect these standard courses.
- 2. Revise and standardize the mathematics placement criteria for students entering grade 6 (Math 6, Extended Math 6 and Extended Math 7) and ensure that revised criteria are linked to the Math 5 curricula.
- 3. Develop and implement a communication plan to improve awareness of grade 6 mathematics course placement options and their long-term implications to all stakeholders.
- 4. Administer a norm-referenced mathematics test to all students during grade 5 and grade 8 to assist with mathematics course placement decisions in grade 6 and grade 9, respectively.
- 5. Administer the PSAT to all students during grade 10 to assist with mathematics course placement decisions in grades 11 and 12, as well as improving SAT performance.
- 6. Develop and implement a plan to increase the overall participation in college-level equivalency mathematics courses among high school students, with a specific emphasis on increasing participation among Black students and Hispanic students.
- 7. Revise and standardize the Grade 5 Mathematics instructional program to encompass the accelerated instruction that is present at some schools and is necessary to prepare students for accelerated mathematics instruction in middle school.
- 8. Review the Geometry with Applications course and consider migrating to a two-year Geometry course sequence for struggling students.
- 9. Replace the CIMS student information management system to improve the data mining capabilities of the school division.

Appendix A Stakeholder Survey Responses

Parent Survey Responses

Gender						Response	Response
Gender						Percent	Total
Male						34	77
Female						66	152
Total Respondents							229

Dana /Ethaiaite						Response	Response
Race/Ethnicity						Percent	Total
American Indian or Alaska Native						0	1
Asian						4	8
Black or African American						10	23
Hispanic						4	9
Native Hawaiian or Other Pacific Islander						1	2
White						82	185
Total Respondents					•	-	226

Highest Education Level	Response	Response
Highest Education Level	Percent	Total
Some High School	3	6
High School Graduate	16	36
Some College	27	63
Associate's Degree	6	13
Bachelor's Degree	20	47
Some Graduate Courses	7	16
Graduate Degree	22	50
Total Respondents		231

Number of Years as Sta	fford Countr	Docidos	nt				Response	Response
Number of Tears as Sta	nord County	Kesidei	111				Percent	Total
0 - 2							16	37
3 - 5							21	49
6 - 8							18	42
9 - 11							11	25
12 - 14							9	20
15 - 17							9	21
18 - 20							5	12
More than 20							11	25
Total Respondents								231

Please select the current	grade level	of you	r chile	l who	atten	ds Sta	fford		Response	Response
County Public Schools.									Percent	Total
5th									17	39
6th									15	35
7th									16	37
8th									12	28
9th									12	28
10th									13	30
11th									10	22
12th									5	12
Total Respondents										231

P1 I expect my child to in math class.	o acmeve me									Response Percent	Tota
Strongly Agree								1		64	147
Agree		_				_	_	-+	-	31	71
No Opinion										2	4
						\vdash				3	8
Disagree Strongly Disagree		+	-			\vdash	-	-		0	1
		L								U	231
Total Respondents											231
D2 I an accuracy my abi	ild to tales th		ah alla	i	. math	alaaaaa				D	D
P2 I encourage my chi	na to take in	emost	CHane	ngmg	maun	ciasses	•			Response	Response
available to him/her.										Percent	Tota
Strongly Agree										45	104
Agree					_	\vdash				41	93
No Opinion		-				\vdash		_		4	10
Disagree		-				\vdash	_	_		9	20
Strongly Disagree										1	2
Total Respondents											229
										_	_
P3 I am satisfied with	my child's c	urrent l	evel of	f math	n achie	evemen	t.			Response	Response
		_		1					-	Percent	Tota
Strongly Agree			-			\vdash				24	56
Agree						_				53	121
No Opinion										2	5
Disagree										19	44
							_		_		
Strongly Disagree										2	226
										2	230
Strongly Disagree Total Respondents	poriately place	red in h	nis /her	r math	n class	hased	on			•	230
Strongly Disagree Total Respondents P4 My child was appro		ed in h	nis/he	r math	n class	s based	on			Response	230 Response
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a		eed in h	nis/her	r math	n class	s based	on			Response Percent	Response Tota
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree		ed in h	nis/her	r math	n class	s based	on			Response Percent	Response Tota 70
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree		eed in h	nis/her	r math	ı class	s based	on			Response Percent 30 47	Response Tota 70 108
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion		ced in h	nis/her	r math	n class	s based	on			Response Percent 30 47 10	230 Response Tota 70 108
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree		eed in h	nis/her	r math	n class	s based	on			Response	230 Response Tota 70 108 22
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree		eed in h	nis/her	r math	n class	s based	on			Response Percent 30 47 10	230 Response Tota 70 108 22 29
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree		eed in h	nis/hen	r math	n class	s based	on			Response	230 Response Tota 70 108 22 29
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree		eed in h	nis/her	r math	n class	s based	on			Response Percent 30 47 10 13	230 Response Tota 70 108 22 29 2 231
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree	ability.									Response Percent 30 47 10 13 1 Response	230 Response Tota 70 108 22 29 231 Response
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child	ability.									Response Percent 30 47 10 13 1 Response Percent	230 Response Tota 70 108 22 29 231 Response Tota
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree	ability.									Response	230 Response Tota 70 108 22 29 231 Response Tota 70
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree	ability.									Response	230 Response Tota 70 108 22 29 231 Response Tota 70 93
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion	ability.									Response	230 Response Tota 70 108 22 25 231 Response Tota 70 93 41
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion Disagree Disagree Disagree	ability.									Response	230 Response Tota 70 108 22 29 231 Response Tota 70 93 41
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion Disagree Strongly Disagree Strongly Agree Agree No Opinion Disagree Strongly Disagree	ability.									Response	230 Response Tota 70 108 22 29 231 Response Tota 70 93 41 17
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion Disagree Disagree Disagree	ability.									Response	230 Response Tota 70 108 22 29 231 Response Tota 70 93 41
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	's math teach	ner is w	vell-pro	eparec	d to te	ach ma	th.			Response Percent 30 47 10 13 1 Response Percent 31 41 18 7 3	230 Response Tota 70 108 22 231 Response Tota 70 41 17 0 227
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P6 My child's teacher	's math teach	ner is w	vell-pro	eparec	d to te	ach ma	th.			Response	230 Response Tota 70 108 22 23 231 Response Tota 70 93 41 17 0 227
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P6 My child's teacher child's progress in mate	's math teach	ner is w	vell-pro	eparec	d to te	ach ma	th.			Response	230 Response Tota 70 108 22 29 231 Response Tota 70 93 41 17 0 227 Response Tota
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P6 My child's teacher child's progress in mat Strongly Agree	's math teach	ner is w	vell-pro	eparec	d to te	ach ma	th.			Response	230 Response Tota 70 108 22 231 Response Tota 70 93 41 17 0 227 Response Tota 32
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P6 My child's teacher child's progress in mat Strongly Agree Agree Agree	's math teach	ner is w	vell-pro	eparec	d to te	ach ma	th.			Response	230 Response Tota 70 108 22 231 Response Tota 70 93 41 17 0 227 Response Tota 32 78
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P6 My child's teacher child's progress in mat Strongly Agree Agree No Opinion	's math teach	ner is w	vell-pro	eparec	d to te	ach ma	th.			Response	230 Response Tota 70 108 22 231 Response Tota 70 93 41 17 6 227 Response Tota 32 78
Strongly Disagree Total Respondents P4 My child was approhis/her mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P5 I feel that my child Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P6 My child's teacher child's progress in mat Strongly Agree Agree Agree	's math teach	ner is w	vell-pro	eparec	d to te	ach ma	th.			Response	230 Response Tota 70 108 22 231 Response Tota 70 93 41 17 0 227 Response Tota 32 78

P7 My child has received	a circia ireip								Response
regular class time.				-	1 1	1		Percent 13	Total 29
Strongly Agree			-	-	+			-	
Agree No Opinion			_	-	+ +			21	49 56
No Opinion			_	-	+ +				
Disagree C. I. D.	_				+ +			29	67
Strongly Disagree								13	29
Total Respondents									230
P8 I have confidence tha	ıt my child's	s math t	eacher (can ann	ronriate	lv		Response	Response
recommend him/her for	-				_	-y		Percent	Tota
Strongly Agree	Piacement	111 1115/ 11		1	1 1	1		27	61
Agree Agree								45	103
					+			-	
No Opinion				-	+ +			18	41
Disagree C. L. D.	_	1		-	+ +			8	18
Strongly Disagree								3	220
Total Respondents									229
DO I am donotom dath o mand	l	4: 41-	.4	:1-k-1-	: 4ls a	.:		D	D
P9 I understand the mat	n course op	tions tn	at are a	vanabie	in the n	niaaie		Response	Response
schools.			-			- 1	<u> </u>	Percent	Tota
Strongly Agree								18	40
Agree		-						44	99
No Opinion				_	1			21	47
								15	34
Disagree									
Strongly Disagree Total Respondents	th course of	ptions tl	hat are a	availabl	e in the	high		2	5 225
Strongly Disagree Total Respondents P10 I understand the maschools.	th course o	ptions tl	hat are a	availabl	e in the	high		Response Percent	5 225 Response Total
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree	th course o	ptions tl	hat are a	availabl	e in the	high		Response Percent 21	Sesponse Total
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree	th course o	ptions the	hat are a	availabl	e in the	high		Response Percent 21 48	5 225 Response Total 47 107
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion	th course o	ptions tl	hat are a	availabl	e in the	high		2 Response Percent 21 48 12	5 225 Response Total 47 107 28
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree	th course o	ptions tl	hat are a	availabl	e in the	high		Response Percent 21 48 12 17	5 225 Response Total 47 107 28
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree	th course o	ptions the	hat are a	availabl	e in the	high		2 Response Percent 21 48 12	5 225 Response Total 47 107 28 38
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree	ath course of	ptions the	hat are a	availabl	e in the	high		Response Percent 21 48 12 17	55 225 Response Tota 47 107 28 38
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents								Response Percent 21 48 12 17	5 225 Response Tota 47 107 28 38 5 225
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree								Response Percent 21 48 12 17 2	5 225 Response Total 47 107 28 38 5 225
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear.								Response Percent 21 48 12 17 2 Response Percent	55 225 Response Tota 47 107 28 38 55 225 Response Tota
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree								Response Percent 21 48 12 17 2 Response Percent 18	5 225 Response Total 47 107 28 38 5 225 Response Total 41
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree								Response Percent 21 48 12 17 2 Response Percent 18 46	Total 47 107 28 38 55 225 Response Total 41 104
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion								Response Percent 21 48 12 17 2 Response Percent 18 46 11	Total 47 107 28 38 55 225 Response Total 41 104 25
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree								Response Percent 21 48 12 17 2 Response Percent 18 46 11 22	Response Tota 47 107 28 38 55 225 Response Tota 41 104 25 50
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Strongly Agree Strongly Disagree Strongly Disagree								Response Percent 21 48 12 17 2 Response Percent 18 46 11	Total 47 107 28 38 5 225 Response Total 41 104 25 50
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree								Response Percent 21 48 12 17 2 Response Percent 18 46 11 22	Response Tota 47 107 28 38 55 225 Response Tota 41 104 25 50
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents No Opinion Disagree Strongly Disagree Total Respondents	ath course of	options a	available	e to my	child fo	r next		Response Percent 21 48 12 17 2 Response Percent 18 46 11 22 2	Total 47 107 28 38 5 225 Response Total 41 104 25 50
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P12 I am familiar with the	ath course of	options a	available	e to my	child fo	r next		Response Percent 21 48 12 17 2 Response Percent 18 46 11 22 2 Response	Tota 47 107 28 38 5 225 Response Tota 41 104 25 50 4 224 Response
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents P12 I am familiar with the when entering middle scl	ath course of	options a	available	e to my	child fo	r next		Response Percent 21 48 12 17 2 Response Percent 18 46 11 22 2	Tota Response Tota 47 107 28 38 55 225 Response Tota 41 104 25 50 4 224 Response Tota
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P12 I am familiar with the	ath course of	options a	available	e to my	child fo	r next		Response Percent 21 48 12 17 2 Response Percent 18 46 11 22 2 Response Percent 11	Tota 47 107 28 38 55 225 Response Tota 41 104 25 50 4 224 Response Tota 25
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents P12 I am familiar with the when entering middle scl Strongly Agree Agree Agree	ath course of	options a	available	e to my	child fo	r next		Response Percent 21 48 12 17 2 Response Percent 18 46 11 22 Response Percent Percent Percent Response Percent Percent	Tota 47 107 28 38 55 225 Response Tota 41 104 25 50 4 224 Response Tota 25 73
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents P12 I am familiar with the when entering middle scl Strongly Agree	ath course of	options a	available	e to my	child fo	r next		Response Percent 21 48 12 17 2 Response Percent 18 46 11 22 2 Response Percent 11	Total 47 107 28 38 5 225 Response Total 41 104 25 50
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P12 I am familiar with the when entering middle scl Strongly Agree Agree No Opinion Disagree Strongly Agree Total Respondents	ath course of	options a	available	e to my	child fo	r next		Response Percent 21 48 12 17 2 Response Percent 18 46 11 22 2 Response Percent 11 32	Response Tota 47 107 28 38 55 225 Response Tota 41 104 25 50 4 224 Response Tota 25 73 50
Strongly Disagree Total Respondents P10 I understand the maschools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P11 I am aware of the mayear. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P12 I am familiar with the when entering middle scl Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	ath course of	options a	available	e to my	child fo	r next		Response Percent 21 48 12 17 2 Response Percent 18 46 11 222 2 Response Percent 11 32 22 22	Total 47 107 28 38 55 225 Response Total 41 104 25 50 4 224 Response Total 25 73

P13 The criteria used to	_		classes	when ente	ering	Respons	e Response
middle school are consis	stently applie	d.				Percer	it Total
Strongly Agree							7 15
Agree						2) 45
No Opinion						6) 133
Disagree						1	2 26
Strongly Disagree							2 4
Total Respondents							223
P14 I am familiar with t	he criteria us	ed to place	e studen	ıts in math	classes	Respons	e Response
while attending middle						Percer	
Strongly Agree	g					1	
Agree						3	
No Opinion						2	
			+ +			2	
Disagree Standard Disagree	_		1			 	
Strongly Disagree Tatal Pagandanta							4 9 225
Total Respondents							223
D45 I 1 . 1	11 .				cc .	D	D
P15 I am actively involv	ed in the mat	n placeme	ent decis	sions that a	iffect my	Respons	•
child.						Percer	
Strongly Agree			\perp			2	
Agree						3	
No Opinion						1	4 31
Disagree						2) 44
Strongly Disagree							5 12
Total Respondents							225
						Dospons	o Posponso
P16 I should be able to	choose my ch	nild's math	classes	·.		Respons	
	choose my ch	nild's math	classes	s.		Percer	it Total
Strongly Agree	choose my ch	nild's math	classes	s.		Percer 2	t Total
Strongly Agree Agree	choose my ch	nild's math	classes	5.		Percer 2 4	t Total 1 47 4 99
Strongly Agree Agree No Opinion	choose my ch	nild's math	classes	s.		Percer 2 4 1	1 47 4 99 8 40
Strongly Agree Agree No Opinion Disagree	choose my ch	nild's math	classes	i.		Percer 2 4 4 1 1 1	1 Total 1 47 4 99 8 40 6 37
Strongly Agree Agree No Opinion Disagree Strongly Disagree	choose my ch	nild's math	classes			Percer 2 4 4 1 1 1	11 Total 1 47 4 99 8 40 6 37 1 2
Strongly Agree Agree No Opinion Disagree	choose my ch	nild's math	classes	5.		Percer 2 4 4 1 1 1	11 Total 1 47 4 99 8 40 6 37 1 2
Strongly Agree Agree No Opinion Disagree Strongly Disagree	choose my ch	nild's math	classes			Percer 2 4 4 1 1 1	11 Total 1 47 4 99 8 40 6 37 1 2
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents						Percer 2 4 4 1 1 1	tt Total 1 47 4 99 8 40 6 37 1 2 225 e Response
Strongly Agree Agree No Opinion Disagree Strongly Disagree						Percer 2 4 1 1 1	tt Total 1 47 4 99 8 40 6 37 1 2 225 e Response
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents						Percer 2 4 4 1 1 1 1 Respons	tt Total 1 47 4 99 8 40 6 37 1 2 225 e Response
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be						Percer 2 4 1 1 Respons	1
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree						Percer 2 2 4 1 1 1 1 1 1 Respons Percer 1 1	att Total 1 47 4 99 8 40 6 37 1 2 225 e Response tt Total 5 34 0 90
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion						Percer	tt Total 1 47 4 99 8 40 6 37 1 2 225 e Response tt Total 5 34 0 90 3 29
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion Disagree						Percer 2 4 1 1 Respons Percer 1 4 1 2 2	tt Total 1 47 4 99 8 40 6 37 1 2 225 e Response tt Total 5 34 0 90 3 29 0 66
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion						Percer 2 4 1 1 Respons Percer 1 4 1 2 2	tt Tota 1 47 4 99 8 40 6 37 1 2 225 e Response tt Tota 5 34 0 90 3 29 9 66 3 7
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion Disagree Strongly Disagree Strongly Disagree						Percer 2 4 1 1 Respons Percer 1 4 1 2 2	tt Tota 1 47 4 99 8 40 6 37 1 2 225 e Response tt Tota 5 34 0 90 3 29 9 66 3 7
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	able to choose	se his/her	math cl	asses.	ance in	Percer 2 4 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	tt Tota 1 47 4 99 8 40 6 37 1 2 225 e Response tt Tota 5 34 0 90 3 29 9 66 3 7 226
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P18 All students can act	able to choose	se his/her	math cl	asses.	ance in	Percer 2	tt Tota 1 47 4 99 8 40 6 37 1 2 225 e Response tt Tota 5 34 0 90 3 29 9 66 3 7 226 e Response
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P18 All students can ach math classes.	able to choose	se his/her	math cl	asses.	ance in	Percer 2 4 4 1 1 1 1 1 1 1	tt Tota 1 47 4 99 8 40 6 37 1 2 225 e Response tt Tota 5 34 0 90 3 29 9 66 3 7 226 e Response tt Tota transport tran
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P18 All students can ach math classes. Strongly Agree	able to choose	se his/her	math cl	asses.	ance in	Percer	tt Tota 1 47 4 99 8 40 6 37 1 2 225 e Response tt Tota 5 34 0 90 3 29 9 66 3 7 226 e Response tt Tota 4 30
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P18 All students can ach math classes. Strongly Agree Agree	able to choose	se his/her	math cl	asses.	ance in	Percer 2	tt Total 1 47 4 99 8 40 6 37 1 2 225 e Response tt Total 5 34 0 90 3 29 9 66 3 7 226 e Response tt Total 4 30 9 87
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P18 All students can ach math classes. Strongly Agree Agree No Opinion	able to choose	se his/her	math cl	asses.	ance in	Percer 2	tt Total 1 47 4 99 8 40 6 37 1 2 225 e Response tt Total 5 34 0 90 3 29 0 66 3 7 226 e Response tt Total 4 30 0 87 0 20
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P18 All students can act math classes. Strongly Agree Agree No Opinion Disagree	able to choose	se his/her	math cl	asses.	ance in	Percer 2 4 1 1 Respons Percer 1 4 2 Respons Percer 1 3 3 3	tt Total 1 47 4 99 8 40 6 37 1 2 225 e Response tt Total 5 34 0 90 3 29 9 66 3 7 226 e Response tt Total 4 30 9 87 9 20 2 70
Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P17 My child should be Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P18 All students can ach math classes. Strongly Agree Agree No Opinion	able to choose	se his/her	math cl	asses.	ance in	Percer 2 4 1 1 Respons Percer 1 4 2 Respons Percer 1 3 3 3	tt Total 1 47 4 99 8 40 6 37 1 2 225 e Response tt Total 5 34 0 90 3 29 0 66 3 7 226 e Response tt Total 4 30 0 87 0 20

P19 The main reason tha	t some stud	lents peri	form po	orly in	math	classe	s is		Response	Response
their lack of motivation.			1		_				Percent	Total
Strongly Agree		_							12	27
Agree									44	100
No Opinion				-					10	23
Disagree	_								29	66
Strongly Disagree									4	9
Total Respondents										225
P20 The main reason tha	it some stud	lents per	form po	orly in	math	classe	es is		Response	Response
their teacher's lack of abi	lity to effect	ively tea	ch math	١.					Percent	Total
Strongly Agree									10	23
Agree									38	86
No Opinion									15	33
Disagree									33	73
Strongly Disagree				1					4	9
Total Respondents		<u> </u>						<u> </u>		224
P21 All students are capa	ble of succ	essfully c	ompleti	ng a h	igh scl	nool le	evel		Response	Response
Algebra I class in middle	school.								Percent	Total
Strongly Agree									7	15
Agree									26	59
No Opinion									17	39
Disagree									43	96
Strongly Disagree									7	16
Total Respondents										225
D22 The cabools provide										
	#000017#000 f	hat halm		at marr 6	h:14 :-	. 100	.:		D	D
P22 The schools provide	resources t	hat help	me assis	st my c	hild in	ı learr	ning		Response	
math.	resources t	hat help	me assis	st my c	hild in	ı learr	ning	<u> </u>	Percent	Total
math. Strongly Agree	resources t	hat help	me assis	st my c	child in	ı learr	ning		Percent 4	Total 10
math. Strongly Agree Agree	resources t	hat help	me assis	st my c	child in	learr	ning		Percent 4 36	Total 10 82
math. Strongly Agree Agree No Opinion	resources t	hat help	me assis	st my c	child in	ı learr	ning		Percent 4 36 28	Total 10 82 64
math. Strongly Agree Agree No Opinion Disagree	resources t	hat help	me assis	st my c	child in	learr	ning		Percent 4 36 28 28	Total 10 82 64 63
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree	resources t	hat help	me assis	st my c	child in	learr	ning		Percent 4 36 28	Total 10 82 64 63
math. Strongly Agree Agree No Opinion Disagree	resources t	hat help	me assis	st my c	child in	n learr	ning		Percent 4 36 28 28	Total 10 82 64 63
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents									Percent 4 36 28 28 3	Total 10 82 64 63 6 225
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is									Percent	Response Total 10 82 64 63 6 225 Response
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students.									Percent	Total 10 82 64 63 6 225 Response Total
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree									Percent	Total 10 82 64 63 6 225 Response Total
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree									Percent	Total 10 82 64 63 6 225 Response Total 17 97
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion									Percent	Total 10 82 64 63 6 225 Response Total 17 97 83
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree									Percent	Total 10 82 64 63 6 225 Response Total 17 97 83
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Strongly Disagree									Percent	Total 10 82 64 63 6 225 Response Total 17 97 83 26
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree									Percent	Total 10 82 64 63 6 225 Response Total 17 97 83 26
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	n Stafford C	County Pu	ublic Sch	hools o	hallen	ges al			Percent	Total 10 82 64 63 6 225 Response Total 17 97 83 26 3 226
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P24 The math program is	n Stafford C	County Pu	ublic Sch	hools o	hallen	ges al			Percent	Total 10 82 64 63 6 225 Response Total 17 97 83 26 3 226 Response
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P24 The math program is prepares students for math	n Stafford C	County Pu	ublic Sch	hools o	hallen	ges al			Percent 4 36 28 28 3 3	Total 10 82 64 63 6 225 Response Total 17 97 83 226 Response Total Total
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P24 The math program is prepares students for mat Strongly Agree	n Stafford C	County Pu	ublic Sch	hools o	hallen	ges al			Percent	Total 10 82 64 63 6 225 Response Total 17 97 83 226 Response Total 226
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P24 The math program is prepares students for mat Strongly Agree Agree	n Stafford C	County Pu	ublic Sch	hools o	hallen	ges al			Percent	Total 10 82 64 63 6 225 Response Total 26 Response Total 226
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P24 The math program is prepares students for mat Strongly Agree Agree No Opinion	n Stafford C	County Pu	ublic Sch	hools o	hallen	ges al			Percent	Total 10 82 64 63 6 225 Response Total 17 97 83 26 3 226 Response Total 229 94
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P24 The math program is prepares students for mate Strongly Agree Agree No Opinion Disagree Disagree Total Respondents	n Stafford C	County Pu	ublic Sch	hools o	hallen	ges al			Percent	Total 10 82 64 63 6 225 Response Total 17 97 83 26 Response Total 226 Response Total 17 97 83 10 10 11 11 11 11 11 11 11 11 11 11 11
math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P23 The math program is students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents P24 The math program is prepares students for mat Strongly Agree Agree No Opinion	n Stafford C	County Pu	ublic Sch	hools o	hallen	ges al			Percent	Total 10 82 64 63 6 225

11th

12th Total Respondents 66

59

21

19 32

Middle and High School Counselor Survey Responses

					•	_					
										Response	Response
Gender										Percent	Total
Male										19	6
Female										81	26
Total Respondents											32
D /Dd ***										Response	Response
Race/Ethnicity										Percent	Total
American Indian or Alaska Native										3	1
Asian										0	0
Black or African American										6	2
Hispanic										0	0
Native Hawaiian or Other Pacific Islander										0	0
White										91	29
Total Respondents		•	•	•				•			32
Number of Credit Hours of Ma	them	atics (Cours	eworl	c Com	pleted	for			Response	Response
Undergraduate Degree										Percent	Total
0 - 12										91	29
13 - 21 (or Mathematics Minor)										6	2
22 - 33										0	0
More than 33 (or Math Undergrad)										3	1
Total Respondents											32
										D	D
Number of Years as a School C	ounse	elor								Response	Response
0. 2			1	1	_	1				Percent	Total
0 - 2		-								16	5
3 - 5			-		-					19	6
6 - 8		-	_	-	-					19	6
9 - 11				-	-					13	4
12 - 14	_									6	2
15 - 17		Ļ		-	-					9	3
18 - 20	_									3	1
More than 20										16	5
Total Respondents											32
										D	D
Grade Level(s) You Currently C	Couns	el (sel	lect a	ll that	apply))				Response	Response
					1	1		1		Percent	Total
6th					-		-	-		31	10
7th					_		_	<u> </u>		22	7
8th								<u> </u>		28	9
9th										66	21
10th								I		66	21

C1 I encourage studen	ts to take the					Response	Response
available to them.						Percent	Total
Strongly Agree					-+	44	14
Agree				-+	\rightarrow	41	13
No Opinion			+			3	1
Disagree			+		\rightarrow	9	3
Strongly Disagree						3	1
Total Respondents							32
C2 My students were a			heir mat	hematics cla	isses	Response	Response
based on their mathem	atical abilities	S.				Percent	Total
Strongly Agree			\bot		\rightarrow	22	7
Agree						63	20
No Opinion						9	3
Disagree						6	2 0
Strongly Disagree						0	0
Total Respondents							32
C3 I have confidence to	hat I can appi	opriately	recomme	end students	for	Response	Response
placement in their next	mathematics	classes.				Percent	Total
Strongly Agree						38	12
Agree						59	19
			$\overline{}$			0	0
No Opinion							
No Opinion Disagree						3	1
Disagree						3	1
Disagree Strongly Disagree Total Respondents	sloted a gollog	vo lovel Co	lavkys al	accip biob o	ahaal	0	32
Disagree Strongly Disagree Total Respondents C4 I successfully competence of the co	_		lculus cl	ass in high s	school	Response Percent 13 13	0 32 Response Total 4
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements Strongly Agree Agree No Opinion	_		lculus cl	ass in high s	school	Response Percent 13 13 16	0 32 Response Total 4 4 5
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placeme Strongly Agree Agree No Opinion Disagree	_		lculus cl	ass in high s	school	Response Percent	0 32 Response Total 4 4 5 8
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placeme Strongly Agree Agree No Opinion Disagree Strongly Disagree	_		lculus cl	ass in high s	school	Response Percent 13 13 16	0 32 Response Total 4 4 5 8
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placeme Strongly Agree Agree No Opinion Disagree	_		lculus cl	ass in high s	school	Response Percent	0 32 Response Total 4 4 5 8
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placeme Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	ent) or colleg					Response Percent 13 13 16 25 34	0 32 Response Total 4 4 5 8 11
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements) Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the meaning strongly Disagree	ent) or colleg					Response Percent 13 13 16 25 34 Response	0 32 Response Total 4 4 5 8 11 32 Response
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements) Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the module schools.	ent) or colleg					Response Percent 13 13 16 25 34 Response Percent	0 32 Response Total 4 4 5 8 11 32 Response Total
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements) Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the meaning strongly Disagree	ent) or colleg					Response Percent 13 13 16 25 34 Response Percent 31	0 32 Response Total 4 4 5 8 11 32 Response Total 10
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements) Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the maniddle schools. Strongly Agree Agree	ent) or colleg					Response Percent 13 13 16 25 34 Response Percent 31 41	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placeme Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the m middle schools. Strongly Agree Agree No Opinion	ent) or colleg					Response Percent 13 13 16 25 34 Response Percent 31 41 3	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13
Disagree Strongly Disagree Total Respondents C4 I successfully complete. Geg. Advanced Placements Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the maniddle schools. Strongly Agree Agree No Opinion Disagree Total Respondents	ent) or colleg					Response Percent 13 13 16 25 34 Response Percent 31 41	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13 1
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placeme Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the m middle schools. Strongly Agree Agree No Opinion	ent) or colleg					Response Percent 13 13 16 25 34 Response Percent 31 41 3	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13
Disagree Strongly Disagree Total Respondents C4 I successfully complete. Geg. Advanced Placements Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the maniddle schools. Strongly Agree Agree No Opinion Disagree Total Respondents	ent) or colleg					Response Percent 13 13 16 25 34 Response Percent 31 41 3 25	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13 1 8
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements) Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the maiddle schools. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents C6 I understand the maiddle schools.	athematics co	purse option	ons that a	are available	in the	Response Percent 13 13 16 25 34 Response Percent 31 41 3 25 0 Response	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13 1 8 0 32 Response
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements) Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the meniddle schools. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents C6 I understand the menidal Respondents C6 I understand the menidal Respondents	athematics co	purse option	ons that a	are available	in the	Response Percent 13 13 16 25 34 Response Percent 31 41 3 25 0	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13 1 8 0 32 Response Total Total
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements) Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the maiddle schools. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents C6 I understand the maiddle schools.	athematics co	purse option	ons that a	are available	in the	Response Percent 13 13 16 25 34 Response Percent 31 41 3 25 0 Response	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13 1 8 0 32 Response
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements) Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the meniddle schools. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents C6 I understand the menidal Respondents C6 I understand the menidal Respondents	athematics co	purse option	ons that a	are available	in the	Response Percent 13 13 16 25 34 Response Percent 31 41 3 25 0 Response Percent	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13 1 8 0 32 Response Total Total
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements) Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the mentidle schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C6 I understand the mentidle schools. Strongly Disagree Strongly Disagree Total Respondents C6 I understand the mentigh schools. Strongly Agree	athematics co	purse option	ons that a	are available	in the	Response Percent 13 13 16 25 34 Response Percent 31 41 3 25 0 Response Percent 63	0 32 Response Total 4 4 4 5 8 11 32 Response Total 10 13 1 8 0 32 Response Total 20 12
Disagree Strongly Disagree Total Respondents C4 I successfully comp (e.g. Advanced Placements) Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the mentidle schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C6 I understand the mentidle schools. Strongly Disagree Strongly Disagree Total Respondents C6 I understand the mentigh schools. Strongly Agree Agree Agree	athematics co	purse option	ons that a	are available	in the	Response Percent 13 13 16 25 34 Response Percent 31 41 3 25 0 Response Percent 63 38	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13 1 8 0 32 Response Total 20
Disagree Strongly Disagree Total Respondents C4 I successfully complete. Geg. Advanced Placements Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C5 I understand the mandle schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C6 I understand the mandle schools. Strongly Disagree Total Respondents C6 I understand the mandle schools. Strongly Agree Agree Agree No Opinion No Opinion	athematics co	purse option	ons that a	are available	in the	Response Percent 13 13 14 16 25 34 Response Percent 31 41 3 25 0 Response Percent 63 38 0	0 32 Response Total 4 4 5 8 11 32 Response Total 10 13 1 8 0 32 Response Total 20 12

C7 I am aware of the m for next year.								-	cent	Response Tota
Strongly Agree									66	21
Agree									34	11
No Opinion									0	(
Disagree					<u> </u>				0	(
Strongly Disagree		1 1							0	(
Total Respondents	l .		•							32
C8 I am familiar with the	he criteria us	ed to pla	ce stude	ents in	math	classe	s	Respo	onse	Response
when entering middle s		•						-	cent	Tota
Strongly Agree									10	3
Agree									20	(
No Opinion					i				7	
Disagree	_								47	14
Strongly Disagree									17	
Total Respondents									1 /	3(
C9 The criteria used to	place studen	ts in ma	th class	es whei	n ente	ring		Respo	onse	Respons
middle school are consi	•					Ü		-	cent	Tota
Strongly Agree									6	2
Agree									13	4
No Opinion									52	10
то оринон										
Disagree										
0									26	
Strongly Disagree Total Respondents C10 I am familiar with		_	ace stud	lents in	math	class	es	Respo	3 onse	1 31 Response
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree		_	ace stud	lents in	math	class	es	Respo Pero	onse cent	31 Response Tota
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree		_	ace stud	lents in	math	class	es		3 onse cent 19 53	Respons Tota
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion		_	ace stud	lents in	math	class	es		3 onse cent 19 53 0	Response Tota
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree		_	ace stuc	lents in	math	class	es		3 onse cent 19 53	Respons Tota
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree		_	ace stud	dents in	math	class	es		3 onse cent 19 53 0	Response Tota (17
Disagree Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents		_	ace stud	lents in	math	class	es		3 onse cent 19 53 0 22	Response Tota (17)
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	and high sch	ool.						Perd	3 onse cent 19 53 0 22	Respons Tota 11 (32
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve p	and high sch	ool.						Respo	3 onse cent 19 53 0 22	Respons Tota (1) (1) (2) 32 Respons
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve paffect their children.	and high sch	ool.						Respo	3 onse ccent 19 53 0 22 6	Response Tota (17 (17 (2 32 Response Tota
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve paffect their children. Strongly Agree	and high sch	ool.						Pero	3 onse cent 19 53 0 22 6 onse cent 19 19	Response Tota (17 (17 (2 32 Response Tota
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve paffect their children. Strongly Agree Agree	and high sch	ool.						Pero	3 onse cent 19 53 0 22 6 onse cent 19 65	Response Tota (17 (2 32 Response Tota (2 20
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve praffect their children. Strongly Agree Agree No Opinion	and high sch	ool.						Pero	3 onse cent 19 53 0 22 6 onse cent 19 65 13	Response Tota (17) (17) (2) 32 Response Tota (19) (2) (2)
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve paffect their children. Strongly Agree Agree No Opinion Disagree No Opinion Disagree	and high sch	ool.						Pero	3 onse cent 19 53 o 22 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Response Tota (17) (17) (2) Response Tota (2) (2)
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve paffect their children. Strongly Agree Agree No Opinion Disagree Strongly Disagree Strongly Agree Agree No Opinion Disagree Strongly Disagree	and high sch	ool.						Pero	3 onse cent 19 53 0 22 6 onse cent 19 65 13	Respons. Tota (17) (27) 32 Respons. Tota (20) (47)
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve paffect their children. Strongly Agree Agree No Opinion Disagree Strongly Disagree Strongly Agree Agree No Opinion Disagree Strongly Disagree	and high sch	ool.						Pero	3 onse cent 19 53 o 22 6 6 6 6 5 13 3	Response Tota (17 (17 (27 (32 (32 (47 (47 (47 (47 (47 (47 (47 (47 (47 (47
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve paffect their children. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Strongly Agree Agree Total Respondents	and high sch	ool.	atics pla	acemen	t deci:	sions	that	Pero	3 onse cent 19 53 0 22 6 onse cent 19 65 13 3 0	Response Tota (17) (17) (2) 32 Response Tota (19) (19) (19) (19) (19) (19) (19) (19)
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve paffect their children. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents C12 Parents should be	and high sch	ool.	atics pla	acemen	t deci:	sions	that	Respo Pero	3 onse cent 19 53 0 22 6 onse cent 19 65 13 3 0	Response Tota (Control of the control of the contr
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve praffect their children. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents C12 Parents should be strongly Agree	and high sch	ool.	atics pla	acemen	t deci:	sions	that	Respo Pero	3 onse cent 19 53 0 22 6 onse cent 19 65 13 3 0 onse cent	Response Tota (C) Tota
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve praffect their children. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents C12 Parents should be a Strongly Agree Agree	and high sch	ool.	atics pla	acemen	t deci:	sions	that	Respo Pero	3 onse cent 19 53 0 22 6 onse cent 19 65 13 3 0 onse cent 0	Response Tota (C) Tota
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve paffect their children. Strongly Agree No Opinion Disagree Strongly Disagree Total Respondents C11 I actively involve paffect their children. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C12 Parents should be affect their children. Strongly Agree Agree No Opinion	and high sch	ool.	atics pla	acemen	t deci:	sions	that	Respo Pero	3 onse cent 19 53 0 22 6 onse cent 19 65 13 3 0 41 6	Responss Tota (17 (17 (17 (17 (17 (17 (17 (17 (
Strongly Disagree Total Respondents C10 I am familiar with while attending middle Strongly Agree Agree No Opinion Disagree Strongly Disagree	and high sch	ool.	atics pla	acemen	t deci:	sions	that	Respo Pero	3 onse cent 19 53 0 22 6 onse cent 19 65 13 3 0 onse cent 0 41	31

C13 Students should be	able to choo	osc the	ii ow	II IIIai	nemai	100 01	asses.		Response Percent	Tota
Strongly Agree									0	(
Agree								\vdash	47	15
No Opinion									3	1
Disagree							<u> </u>	1 1	47	15
Strongly Disagree								1 1	3	1
Total Respondents		•								32
C14 All students can ach	viowa biab a	aadam	io oto	ndard	o of n	wfo wn	20200	in	Dagnanga	Dagnana
C14 All students can ach mathematics classes.	neve ingii a	cauem	nc sta	iiuaiu	s or pe	.110111	iance	111	Response Percent	Respons Tota
Strongly Agree									0	(
Agree									9	3
No Opinion		1		İ					6	2
Disagree									69	22
Strongly Disagree									16	ī
Total Respondents				I				<u> </u>	 	32
C45 75			•						D	D
C15 The main reason tha		dents	pertor	m poo	orly in	math	emati	.cs	Response	Respons
classes is their lack of mo	otivation.								 Percent	Tota
Strongly Agree								\sqcup	3	1
Agree									44	14
No Opinion									13	4
									20	12
Disagree									38	1.2
	at some stu	dents	perfor	m poo	orly in	math	emati	cs	Response	32
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's		_	-	_	-		emati	cs	Response Percent	32 Response Tota
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree		_	-	_	-		emati	cs	Response Percent 0	32 Respons Tota
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree		_	-	_	-		emati	cs	Response Percent 0 26	Respons Tota
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion		_	-	_	-		emati	cs	Response Percent 0 26 16	Response Tota (
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree		_	-	_	-		emati	cs	Response Percent 0 26 16 45	Response Tota (8
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree		_	-	_	-		emati	cs	Response Percent 0 26 16	Response Tota (§ 1 1 1 1 1 1 1 1 1 1 1 1
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree		_	-	_	-		emati	cs	Response Percent 0 26 16 45	Response Tota (§ 1 1 1 1 1 1 1 1 1 1 1 1
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree	lack of abili	ty to e	ffectiv	vely te	each m	ath.			Response Percent 0 26 16 45	Response Tota (8 14 32
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	able of succ	ty to e	ffectiv	vely te	each m	ath.			Response Percent 0 26 16 45	Response Tota (8 14 2 31 Response
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are capallebra I class in middle	able of succ	ty to e	ffectiv	vely te	each m	ath.			Response Percent 0 26 16 45 13	Respons Tota (§ 14 33 Respons Tota
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are capa Algebra I class in middle Strongly Agree	able of succ	ty to e	ffectiv	vely te	each m	ath.			Response Percent 0 26 16 45 13 Response Percent	Response Tota (8 14 2 31 Response Tota
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are capa Algebra I class in middle Strongly Agree Agree	able of succ	ty to e	ffectiv	vely te	each m	ath.			Response Percent 0 26 16 45 13 Response Percent 0	Response Tota (
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree Agree No Opinion	able of succ	ty to e	ffectiv	vely te	each m	ath.			Response Percent 0 26 16 45 13 Response Percent 0 9 0	Response Tota (Section 14 33 Response Tota (Control 14) (Control 14) (Control 1
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree Agree No Opinion Disagree	able of succ	ty to e	ffectiv	vely te	each m	ath.			Response Percent 0 26 16 45 13 Response Percent 0 9 0 63	Response Tota (8 5 14 22 31 Response Tota (6 6 6 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree Agree No Opinion	able of succ	ty to e	ffectiv	vely te	each m	ath.			Response Percent 0 26 16 45 13 Response Percent 0 9 0	Response Tota (8 14 2 31 Response Tota (((((((((((((
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	able of succeschool.	ty to e	ly con	mpletin	ng a h	ath.	ehool 1	level	Response Percent 0 26 16 45 13 Response Percent 0 9 0 63 28	Response Tota (8 5 14 24 31 Response Tota (9 20 32
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents C18 My school provides	able of succeschool.	ty to e	ly con	mpletin	ng a h	ath.	ehool 1	level	Response Percent 0 26 16 45 13 Response Percent 0 9 0 63 28 Response	Response Tota (8 14 25 37 Response Tota (9 20 37 Response
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents C18 My school provides learning math.	able of succeschool.	ty to e	ly con	mpletin	ng a h	ath.	ehool 1	level	Response Percent 0 26 16 45 13 Response Percent 0 9 0 63 28 Response Percent	Response Tota (Section 14 31 Response Tota (Control 14 32 Response Tota (Control 14 32 Response Tota Tota (Control 14 32 Response Tota (Control 14 32 Response Tota
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree No Opinion Disagree Strongly Disagree Total Respondents C18 My school provides learning math. Strongly Agree	able of succeschool.	ty to e	ly con	mpletin	ng a h	ath.	ehool 1	level	Response Percent 0 26 16 45 13 Response Percent 0 9 0 63 28 Response Percent 6	Response Tota (Section 14 33 Response Tota (Comparison 14 35 Response Tota (Comparison 14 36 Response Tota (Comparison 14 37 Response Tota (Comparison 14 37 Response Tota
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree No Opinion Disagree Strongly Disagree Total Respondents C18 My school provides learning math. Strongly Agree Agree	able of succeschool.	ty to e	ly con	mpletin	ng a h	ath.	ehool 1	level	Response Percent 0 26 16 45 13 Response Percent 0 9 0 63 28 Response Percent 6 41	Response Tota (8 5 14 24 31 Response Tota (10 20 32 Response Tota 21 31
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree Agree Total Respondents C18 My school provides learning math. Strongly Agree Agree Agree No Opinion	able of succeschool.	ty to e	ly con	mpletin	ng a h	ath.	ehool 1	level	Response Percent 0 26 16 45 13 Response Percent 0 63 28 Response Percent 6 41 19	Response Tota (8 5 14 22 31 Response Tota (9 32 Response Tota 21 32 Response Tota 43 66
Disagree Strongly Disagree Total Respondents C16 The main reason the classes is their teacher's Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents C17 All students are cape Algebra I class in middle Strongly Agree No Opinion Disagree Strongly Disagree Total Respondents C18 My school provides learning math. Strongly Agree Agree	able of succeschool.	ty to e	ly con	mpletin	ng a h	ath.	ehool 1	level	Response Percent 0 26 16 45 13 Response Percent 0 9 0 63 28 Response Percent 6 41	Response Tota (C) 8 5 14 4 31 Response Tota (C) 20 5 Response Tota 21 32 Response Tota (C) 5 20 20 20 20 20 20 20 20 20

C19 The mathematics program in Stafford County Public Schools	Response	Response	
challenges all students.		Percent	Total
Strongly Agree		17	5
Agree		63	19
No Opinion		13	4
Disagree		3	1
Strongly Disagree		3	1
Total Respondents			30

C20 The mathematics pro	C20 The mathematics program in Stafford County Public Schools							Response	Response		
adequately prepares students for mathematics courses after high school.								Percent	Total		
Strongly Agree										22	7
Agree										59	19
No Opinion										6	2
Disagree										13	4
Strongly Disagree										0	0

Total Respondents 32

Mathematics Teacher (Grades 5-12) Survey Responses

Gender											Response Percent	Response Tota
Male							1				20	39
Female											80	150
Total Respondents											00	195
D /D /											Response	Response
Race/Ethnicity											Percent	Tota
American Indian or Alaska Native											1	
Asian											1	
Black or African American											6	1
Hispanic											1	
Native Hawaiian or Other Pacific Islander											0	
White											91	17
Total Respondents											•	19
Number of Credit Hours of Ma	thema	atics (Course	ework	Com	pletec	l for				Response	Respons
Undergraduate Degree					•						Percent	Tota
0 - 12											44	80
13 - 21 (or Mathematics Minor)											21	4
22 - 33											9	1
More than 33 (or Math Undergrad)											27	5
Total Respondents					•			•	•	•	•	19
Number of Undergraduate or G	radu	ate Le	evel M	athen	natics	Cour	ses				Response	Respons
Completed since Undergraduate											Percent	Tota
0 - 1	U B Q	1			1		1	1	1	1	39	7.
2 - 3							1			1	27	5:
4 - 5							1				12	2
6 - 7							1				9	1
8 - 9			1			-	1	1	1	1	3	1
10 - 11											3	
12 - 13											4	
More than 13							1				5	1
Total Respondents											3	19
											Response	Respons
Number of Years Teaching											Percent	Tota
0 - 2											13	2
3 - 5											14	2
6 - 8											12	2
											20	3
9 - 11						_				1		
											5	
12 - 14			<u> </u>					\vdash			5	
12 - 14 15 - 17	F											1
12 - 14 15 - 17 18 - 20											6	1
9 - 11 12 - 14 15 - 17 18 - 20 More than 20 Total Respondents											6 3	1: 5
12 - 14 15 - 17 18 - 20 More than 20 Total Respondents											6 3 26	5 19
12 - 14 15 - 17 18 - 20 More than 20 Total Respondents	each	(selec	et all ti	hat ap	ply)						6 3 26 Response	5 19 Respons
12 - 14 15 - 17 18 - 20 More than 20 Total Respondents Grade Level(s) You Currently T	each	(selec	et all ti	hat ap	ply)						6 3 26	5 19 Respons
12 - 14 15 - 17 18 - 20 More than 20 Total Respondents Grade Level(s) You Currently T	'each	(selec	et all th	hat ap	ply)						6 3 26 Response Percent	5 19 Respons Tota 6
12 - 14 15 - 17 18 - 20 More than 20 Total Respondents Grade Level(s) You Currently T 5th 6th	'each	(selec	et all th	hat ap	ply)						6 3 26 Response Percent 35	1 5 19 Respons Tota 6
12 - 14 15 - 17 18 - 20 More than 20 Total Respondents Grade Level(s) You Currently T 5th 6th 7th	each	(selec	et all ti	hat ap	ply)						6 3 26 Response Percent 35	1 5 19 Respons Tota 6 2 3
12 - 14 15 - 17 18 - 20 More than 20 Total Respondents Grade Level(s) You Currently T 5th 6th 7th 8th	each	(selec	et all th	hat ap	ply)						6 3 26 Response Percent 35 13	1 5 19 Respons Tota 6 2 2 3 3
12 - 14 15 - 17 18 - 20 More than 20 Total Respondents Grade Level(s) You Currently T 5th 6th 7th 8th 9th	each	(selec	et all th	hat ap	ply)						6 3 26 Response Percent 35 13 15 19	1: 50 19-1 19-1 19-1 19-1 19-1 19-1 19-1 19-
12 - 14 15 - 17 18 - 20 More than 20 Total Respondents Grade Level(s) You Currently T 5th 6th 7th 8th 9th 10th	each	(selec	et all the	hat ap	ply)						Response Percent 35 13 15 19 27	1 5 19 Respons Tota 6 2 3 3 5 5
12 - 14 15 - 17 18 - 20 More than 20 Total Respondents Grade Level(s) You Currently T 5th 6th 7th 8th	'each	(selec	et all t	hat ap	ply)						6 3 26 Response Percent 35 13 15 19	15 50 19 Respons Tota 6 2 3 3

T1 I expect students in standards of performan	_	sses to acr					Response Percent	Total
Strongly Agree							59	116
Agree							39	76
No Opinion							1	1
Disagree							1	1
Strongly Disagree							1	1
Total Respondents		<u> </u>		<u> </u>	•	•	•	195
T2 I encourage my stu	dents to take	the most c	halleng	ing math	ematics		Response	Response
classes available to the			0	0			Percent	Total
Strongly Agree							37	72
Agree							47	91
No Opinion							12	24
Disagree							4	8
Strongly Disagree							0	- 0
Total Respondents	<u> </u>	<u> </u>					· ·	195
T2 I			4-1	4 1 1 .	- C		D.	D
T3 I am satisfied with	my mathemat	ics studen	ts' curre	ent levels	01		Response	Response
achievement.			1 1			 	Percent	Tota
Strongly Agree							1	1
Agree							32	62
No Opinion							6	11
Disagree							55	107
2 . 5:							_	
Total Respondents	opriately plac	ed in my n	nathem	atics clas	ses based	1 1	Response	195
Strongly Disagree Total Respondents T4 Students were appr on their mathematical a		ed in my n	nathema	atics clas	ses based		Response Percent	195 Response
Total Respondents T4 Students were appron their mathematical a		ed in my n	nathema	atics clas	ses based		Response	195 Response Total
Total Respondents T4 Students were appr		ed in my n	nathema	atics clas	ses based		Response Percent	Response Total
Total Respondents T4 Students were appron their mathematical a Strongly Agree		ed in my n	nathema	atics clas	ses based		Response Percent 6	Response Total 11 61
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree		ed in my n	nathema	atics clas	ses based		Response Percent 6 32	Response Total 11 61
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion		ed in my n	nathema	atics clas	ses based		Response Percent 6 32 20	195 Response Total 11 61 39
Total Respondents T4 Students were appr on their mathematical a Strongly Agree Agree No Opinion Disagree		ed in my n	nathema	atics clas	ses based		Response Percent 6 32 20 34	195 Response Total 11 61 39 65
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	abilities.		nathema	atics clas	ses based		Response Percent 6 32 20 34	195 Response Total 11 61 39 65 16
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree	abilities.		nathema	atics clas	ses based		Response	195 Response Total 11 61 39 65 16 192 Response
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	abilities.		nathema	atics clas	ses based		Response Percent 6 32 20 34 8 Response	195 Response Total 11 61 39 65 16 192 Response Total
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared	abilities.		nathema	atics clas	ses based		Response Percent 6 32 20 34 8 Response Percent	195 Response Total 11 61 39 65 16 192 Response Total 91
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree	abilities.		nathema	atics clas	ses based		Response Percent 6 32 20 34 8 Response Percent 47	195 Response Total 11 61 39 65 16 192 Response Total 91
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree Agree No Opinion Disagree	abilities.		nathema	atics clas	ses based		Response	195 Response Total 11 61 39 65 16 192 Response Total 91 82
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree Agree No Opinion Disagree	abilities.		nathema	atics clas	ses based		Response	Response Total 11 61 39 65 16 192 Response Total 91 82 5
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree Agree No Opinion	abilities.		nathema	atics clas	ses based		Response	14 195 Response Total 11 61 39 65 16 192 Response Total 91 82 5 12 3 193
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents	to teach matl	nematics.					Response	195 Response Total 11 61 39 65 16 192 Response Total 91 82 55 12 3 193
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents T6 I regularly provide	to teach matl	nematics.					Response	Response
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents T6 I regularly provide progress in mathematic	to teach matl	nematics.					Response	Response
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents T6 I regularly provide progress in mathematic Strongly Agree	to teach matl	nematics.					Response	195 Response Tota 11 61 39 65 16 192 Response Tota 91 82 51 12 3 193 Response Tota 51
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T6 I regularly provide progress in mathematic Strongly Agree Agree Agree	to teach matl	nematics.					Response	Response Tota 11 61 39 65 10 192 Response Tota 91 82 5 12 3 193 Response Tota 11 124
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T6 I regularly provide progress in mathematic Strongly Agree Agree No Opinion	to teach matl	nematics.					Response	Response Tota 11 61 39 65 16 192 Response Tota 91 82 5 12 3 193 Response Tota 11 124
Total Respondents T4 Students were appron their mathematical a Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T5 I feel well-prepared Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T6 I regularly provide progress in mathematic Strongly Agree Agree Agree	to teach matl	nematics.					Response	Response Tota 11 61 39 65 10 192 Response Tota 91 82 5 12 3 193

T7 I routinely help my stu	dents with	mathem	atics ins	struction	ı outside		Response	Response
regular class time.							Percent	Total
Strongly Agree							37	72
Agree							43	84
No Opinion							8	15
Disagree							11	21
Strongly Disagree							1	2
Total Respondents								194
T8 I have confidence that	I aan anns	oneiatalu	*000****	nond stu	donte for		Dagnanaa	Dognongo
placement in their next ma			iccomin	iiciia sta	idents 101		Response Percent	Response Total
Strongly Agree		Classes.					43	83
Agree			_				49	96
No Opinion							5	9
	_		+	+ +			3	6
Disagree Strongly Disagree			_				0	0
Strongly Disagree Total Page and onto								194
Total Respondents								194
TO I understand the math	omatica co	onti	ana that		ع من مامادان	ha	D	D
T9 I understand the mathemiddle schools.	emanes co	urse opno	nis tiiat	are ava	павіе пі і	ne	Response	Response
			_				Percent	Total
Strongly Agree			_	-	_	-	32	62
Agree							40	76
No Opinion							6	12
							20	39
Disagree							+	
Disagree Strongly Disagree							1	2
Disagree	-						1	2 191
Disagree Strongly Disagree Total Respondents						_		191
Disagree Strongly Disagree Total Respondents T10 I understand the math	nematics c	ourse opt	ions tha	nt are ava	ailable in	the	Response	191 Response
Disagree Strongly Disagree Total Respondents	nematics c	ourse opt	ions tha	nt are ava	ailable in	the		191
Disagree Strongly Disagree Total Respondents T10 I understand the math	nematics co	ourse opt	ions tha	at are ava	ailable in	the	Response Percent 28	Response Total 53
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree	nematics co	ourse opt	ions tha	at are ava	ailable in	the	Response Percent	Response Total 53 72
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree	nematics c	ourse opt	ions tha	at are ava	ailable in	the	Response Percent 28	Response Total 53
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree	nematics c	ourse opt	ions tha	at are ava	ailable in	the	Response Percent 28 38	Response Total 53 72
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion	nematics c	ourse opt	ions tha	at are ava	ailable in	the	Response Percent 28 38 12	191 Response Total 53 72 22
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree	nematics c	ourse opt	ions tha	at are ava	ailable in	the	Response	191 Response Total 53 72 22 33
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree	nematics co	ourse opt	ions tha	at are ava	ailable in	the	Response	191 Response Total 53 72 22 33 11
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree	ı					the	Response	191 Response Total 53 72 22 33 11 191
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the mathematical strongly and strongly because the mathematical strongly because the strongly because	ı					the	Response Percent 28 38 12 17 6	191 Response Total 53 72 22 33 11
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matstudents for next year.	ı					the	Response Percent 28 38 12 17 6 Response Percent	Response Total 53 72 22 33 11 191 Response Total
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matstudents for next year. Strongly Agree	ı					the	Response	Response Total 53 72 22 333 11 191 Response Total 93
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matsudents for next year. Strongly Agree Agree	ı					the	Response	Response Total 53 72 22 333 11 191 Response Total 93 81
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matstudents for next year. Strongly Agree Agree No Opinion	ı					the	Response	Response Total 53 72 22 33 11 191 Response Total 93 81 3
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matstudents for next year. Strongly Agree Agree No Opinion Disagree No Opinion Disagree	ı					the	Response Percent 28 38 12 17 6 Response Percent 49 43 2 6	Response Total 53 72 22 33 11 191 Response Total 93 81 3 11
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the mathemathemathemathemathemathemathemathe	ı					the	Response	Response Total 53 72 22 33 11 191 Response Total 93 81 3 11 1
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matstudents for next year. Strongly Agree Agree No Opinion Disagree No Opinion Disagree	ı					the	Response Percent 28 38 12 17 6 Response Percent 49 43 2 6	Response Total 53 72 22 33 11 191 Response Total 93 81 3 11 1
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the mather students for next year. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents Total Respondents	hematics of	course opt	tions av	ailable t	o my		Response Percent 28 38 12 17 6 Response Percent 49 43 2 6 1	Response Total 53 72 22 333 11 191 Response Total 93 81 3 11 11 189
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the mather students for next year. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents T12 I am familiar with the	hematics of	course opt	tions av	ailable t	o my		Response	Response Total 53 72 22 333 11 191 Response Total 93 81 11 11 189 Response
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the mathestudents for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T12 I am familiar with the when entering middle schools	hematics of	course opt	tions av	ailable t	o my		Response	Response Total 53 72 22 333 11 191 Response Total 93 81 3 11 189 Response Total
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matstudents for next year. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents T12 I am familiar with the when entering middle schoolstrongly Agree	hematics of	course opt	tions av	ailable t	o my		Response	Response Total 53 72 22 333 11 191 Response Total 93 81 11 189 Response Total 30
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matstudents for next year. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents T12 I am familiar with the when entering middle schoolstrongly Agree Agree Agree Agree	hematics of	course opt	tions av	ailable t	o my		Response	Response Total 53 72 22 333 11 191 Response Total 93 81 11 189 Response Total 30 69
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matstudents for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T12 I am familiar with the when entering middle schools Strongly Agree Agree No Opinion	hematics of	course opt	tions av	ailable t	o my		Response	Response
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matstudents for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T12 I am familiar with the when entering middle schools Strongly Agree Agree No Opinion Disagree No Opinion Disagree Strongly Agree Agree No Opinion Disagree	hematics of	course opt	tions av	ailable t	o my		Response Percent 28 38 12 17 6 Response Percent 49 43 2 66 1 Response Percent 16 37 9 33	Response Total 53 72 22 33 11 191 Response Total 93 81 11 11 189 Response Total 189 Response Total 189 Response Total 189
Disagree Strongly Disagree Total Respondents T10 I understand the mathhigh schools. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T11 I am aware of the matstudents for next year. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T12 I am familiar with the when entering middle schools Strongly Agree Agree No Opinion	hematics of	course opt	tions av	ailable t	o my		Response	Response

T13 The criteria used to	_						- 0			Response
middle school are consist	tentiy appi	ea.	1	1		_	1	т т	Percent	Total
Strongly Agree	_				-			+	3	6
Agree		+			-			+	20	39
No Opinion									38	72
Disagree								-	31	59
Strongly Disagree									8	15
Total Respondents										191
754.4 T	•. •	1.				.1			D	D
T14 I am familiar with th			place	stude	nts in	matr	class	es	Response	
while attending middle a	na high sc	nool.	1			_			Percent	Total
Strongly Agree		4							8	16
Agree								\vdash	53	101
No Opinion								\vdash	9	18
Disagree	_							\vdash	27	51
Strongly Disagree									3	5
Total Respondents										191
								_	_	
T15 I actively involve par	rents in the	math	ematio	es plac	emen	t deci	isions	that	Response	Response
affect their children.		_							Percent	Total
Strongly Agree								\sqcup	15	29
Agree									42	80
No Opinion									22	41
•									20	38
Disagree										
Disagree Strongly Disagree Total Respondents			1.7				<u> </u>		1	190
Disagree Strongly Disagree Total Respondents	ble to choo	se thei	r child	dren's	mathe	emati	cs cla	sses.		2
Disagree Strongly Disagree Total Respondents T16 Parents should be al	ble to choo	se thei	r child	lren's	mathe	emati	cs cla	sses.	Response Percent 3	2 190 Response Total
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree	ble to choo	se thei	r chile	dren's	mathe	emati	cs cla	sses.	Response Percent 3 18	2 190 Response Total 5 34
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion	ble to choo	se thei	r child	lren's	matho	emati	cs cla	sses.	Response Percent 3 18 13	2 190 Response Total 5 34 25
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree	ble to choo	se thei	r child	dren's	matho	emati	cs cla	sses.	Response Percent 3 18 13 51	2 190 Response Total 5 34 25
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree	ble to choo	se thei	r child	lren's	matho	emati	cs cla	sses.	Response Percent 3 18 13	2 190 Response Total 5 34 25 96
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree	ble to choo	se thei	r child	dren's	matho	emati	cs cla	sses.	Response Percent 3 18 13 51	2 190 Response Total 5 34 25
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree	ble to choo	se thei	r child	dren's	matho	emati	cs cla	sses.	Response Percent 3 18 13 51 15	2 190 Response Total 5 34 25 96 28
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents									Response Percent 3 18 13 51 15 Response	2 190 Response Total 5 34 25 96 28 188 Response
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be a									Response Percent 3 18 13 51 15 Response Percent	2 190 Response Total 5 34 25 96 28 188 Response Total
Disagree Strongly Disagree Total Respondents T16 Parents should be all Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be all Strongly Agree									Response Percent 3 18 13 51 15 Response Percent 2	2 190 Response Total 5 34 25 96 28 188 Response Total
Disagree Strongly Disagree Total Respondents T16 Parents should be all Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be all Strongly Agree Agree									Response Percent 3 18 13 51 15 Response Percent 2 29	2 190 Response Total 5 34 25 96 28 188 Response Total 3
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be a									Response Percent 3 18 13 51 15 Response Percent 2 29 12	2 190 Response Total 5 34 25 96 28 188 Response Total 3 54
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be a									Response Percent 3 18 13 51 15 Response Percent 2 29 12 49	2 190 Response Total 5 34 25 96 28 188 Response Total 3 54 23
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be al Strongly Agree Agree No Opinion Disagree Strongly Agree Agree No Opinion Disagree Strongly Disagree									Response Percent 3 18 13 51 15 Response Percent 2 29 12	2 190 Response Total 5 34 25 96 28 188 Response Total 3 54 23
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be al Strongly Agree Agree No Opinion Disagree Strongly Agree Agree No Opinion Disagree Strongly Disagree									Response Percent 3 18 13 51 15 Response Percent 2 29 12 49	2 190 Response Total 5 34 25 96 28 188 Response Total 3 54 23
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be a Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Agree Total Respondents T17 Students should be a	able to cho	ose the	eir ow	n matl	nemat	ics cl	asses.		Response Percent 3 18 13 51 15 Response Percent 2 29 12 49 9	2 190 Response Total 5 34 25 96 28 188 Response Total 3 54 23 91 16
Disagree Strongly Disagree Total Respondents T16 Parents should be al Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be a Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents T18 All students can ach	able to cho	ose the	eir ow	n matl	nemat	ics cl	asses.		Response Percent 3 18 13 51 15 Response Percent 2 29 12 49 9 Response	2 190 Response Total 5 34 25 96 28 188 Response Total 3 54 23 91 16 187
Disagree Strongly Disagree Total Respondents T16 Parents should be all Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be all Strongly Agree Agree No Opinion Disagree Strongly Agree Agree No Opinion Disagree Total Respondents T18 All students can ach mathematics classes.	able to cho	ose the	eir ow	n matl	nemat	ics cl	asses.		Response Percent 3 18 13 51 15 Response Percent 2 29 12 49 9 Response Percent	2 190 Response Total 5 34 25 96 28 188 Response Total 3 54 23 91 16 187 Response Total
Disagree Strongly Disagree Total Respondents T16 Parents should be all Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be all Strongly Agree Agree No Opinion Disagree Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents T18 All students can ach mathematics classes. Strongly Agree	able to cho	ose the	eir ow	n matl	nemat	ics cl	asses.		Response Percent 3 18 13 51 15 Response Percent 2 29 12 49 9 Response Percent 12	2 190 Response Total 5 34 25 96 28 188 Response Total 3 54 23 91 16 187 Response Total
Disagree Strongly Disagree Total Respondents T16 Parents should be all Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be all Strongly Agree Agree No Opinion Disagree Strongly Agree Agree No Opinion Disagree Strongly Agree Agree Total Respondents T18 All students can ach mathematics classes. Strongly Agree Agree	able to cho	ose the	eir ow	n matl	nemat	ics cl	asses.		Response Percent 3 18 13 51 15 Response Percent 2 29 12 49 9 Response Percent 12 39	2 190 Response Total 5 34 25 96 28 188 Response Total 3 54 23 91 16 187 Response Total
Disagree Strongly Disagree Total Respondents T16 Parents should be all Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be all Strongly Agree Agree No Opinion Disagree Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T18 All students can ach mathematics classes. Strongly Agree Agree Agree No Opinion	able to cho	ose the	eir ow	n matl	nemat	ics cl	asses.		Response Percent 3 18 13 51 15 Response Percent 2 29 12 49 9 Response Percent 12 39 8	2 190 Response Total 5 34 25 96 28 188 Response Total 3 54 23 91 16 187 Response Total 22 74 15
Disagree Strongly Disagree Total Respondents T16 Parents should be all Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T17 Students should be all Strongly Agree Agree No Opinion Disagree Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T18 All students can ach mathematics classes. Strongly Agree Agree No Opinion Disagree Strongly Agree Agree No Opinion Disagree Strongly Agree Agree No Opinion Disagree Strongly Disagree Strongly Disagree	able to cho	ose the	eir ow	n matl	nemat	ics cl	asses.		Response Percent 3 18 13 51 15 Response Percent 2 29 12 49 9 Response Percent 12 39	2 190 Response Total 5 34 225 96 28 188 Response Total 3 54 23 91 16 187 Response Total 22 74

T19 The main reason tha		dents perf	orm po	orly in	mathema	atics	-	Response
classes is their lack of mo	tivation.		-	_			Percent	Total
Strongly Agree							22	41
Agree							43	81
No Opinion						\bot	8	15
Disagree	_						25	47
Strongly Disagree							3	6
Total Respondents								190
T20 The main reason tha	t some stud	dents perf	form po	orly in	mathem	atics	Response	Response
classes is their teacher's la	ack of abili	ty to effec	tively t	each m	ath.		Percent	Total
Strongly Agree							3	6
Agree							23	44
No Opinion							12	23
Disagree							46	88
Strongly Disagree							15	29
Total Respondents								190
7704 411		C 11	•					
T21 All students are capa		essfully c	omplet	ıng a nı	ign schoo	oi ievei	Response	Response
Algebra I class in middle	school.	1 1					Percent	Total
Strongly Agree							5	9
Agree		_					12	22
No Opinion							6	11
Disagree							48	91
Strongly Disagree							30	57
Total Respondents								190
T22 My school provides r								
	PACALITAGE T	aat holn n	arente	acciet t	hair child	lron in	Doggongo	Doggogg
	resources tl	nat help p	arents	assist tl	heir child	lren in	Response	Response
learning math.	resources th	nat help p	arents	assist t	heir child	lren in	Percent	Total
learning math. Strongly Agree	resources th	nat help p	arents	assist t	heir child	lren in	Percent 7	Total 14
Strongly Agree Agree	resources the	nat help p	arents	assist t	heir child	Iren in	Percent 7 46	Total 14 87
learning math. Strongly Agree Agree No Opinion	resources the	nat help p	arents	assist the	heir child	lren in	Percent 7 46 21	Total 14 87 40
learning math. Strongly Agree Agree No Opinion Disagree	resources the	nat help p	arents	assist the	heir child	Iren in	Percent 7 46 21 24	Total 14 87 40 45
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree	resources the	nat help p	arents	assist the	heir child	Iren in	Percent 7 46 21	Total 14 87 40 45
learning math. Strongly Agree Agree No Opinion Disagree	resources the	nat help p	arents	assist the	heir child	lren in	Percent 7 46 21 24	Total 14 87 40 45
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents						lren in	Percent 7 46 21 24 22	Total 14 87 40 45 41 190
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics pro						lren in	Percent 7 46 21 24	Total 14 87 40 45 45 Response
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students.						Iren in	Percent 7	Total 14 87 40 45 45 Response Total
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students. Strongly Agree						Iren in	Percent	Total 14 87 40 45 41 190 Response Total 16
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students. Strongly Agree Agree						Iren in	Percent 7	Total 14 87 40 45 41 190 Response Total 16 117
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students. Strongly Agree Agree No Opinion						Iren in	Percent	Total 14 87 40 45 41 190 Response Total 16 117 26
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students. Strongly Agree Agree No Opinion Disagree						Iren in	Percent 7 46 21 24 2 Response Percent 9 62 14 13	Total 14 87 40 45 4190 Response Total 16 117 26
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students. Strongly Agree Agree No Opinion						Iren in	Percent	Total 14 87 40 45 4190 Response Total 16 117 26 24
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Strongly Disagree						Iren in	Percent 7 46 21 24 2 Response Percent 9 62 14 13	Total 14 87 40 45 4190 Response Total 16 117 26 24
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	ogram in Si	tafford Co	ounty P	ublic Se	chools	Iren in	Percent 7 46 21 24 2 Response Percent 9 62 14 13 3	Total 14 87 40 45 41 190 Response Total 16 117 26 24 5
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T24 The mathematics prechallenges	ogram in S	tafford Co	ounty P	ublic Se	chools		Percent	Total 14 87 40 45 41 190 Response Total 16 117 26 24 5 188 Response
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T24 The mathematics prechallenges all students.	ogram in S	tafford Co	ounty P	ublic Se	chools		Percent	Total 14 87 40 45 41 190 Response Total 16 117 26 24 5 188 Response
learning math. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T23 The mathematics prechallenges all students. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents T24 The mathematics prechalenges processes and the strongly Agree T24 The mathematics prechadequately prepares stude Strongly Agree	ogram in S	tafford Co	ounty P	ublic Se	chools		Percent	Total 14 87 40 45 41 190 Response Total 16 117 26 24 5 188 Response Total 20
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Strongly Agree		ii cuiiici	ilum for	each of th	e		Response	-
	ıch.						Percent	Tota
Strongly Agree							23	4
Agree							55	10
No Opinion							6	1
Disagree	_						13	2
Strongly Disagree							4	
Total Respondents								18
T26 I need more support	from the so	chool div	ision to	effectively	teach r	ny	Response	Respons
mathematics classes.							Percent	Tot
Strongly Agree							5	1
Agree							30	5
No Opinion							22	4
Disagree							36	6
Strongly Disagree							6	1
Total Respondents								18
Γ27 I know what specific	: informatio	n studen	its need	to lea rn to	meet tl	ne		
learning objectives for each							Response	Respons
that I teach.	10,01 01 11			, 101		,	Percent	Tot
Strongly Agree							31	5
Agree						 	62	11
No Opinion			_		_		2	- 11
Disagree							5	1
0	_	 		+ +	-	 		
Strongly Disagree Total Respondents							0	18
						ing	Response	Respons
portfolios and performand						ing	Response Percent	-
portfolios and performand mathematics.						ing	-	Tot
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portfolios and performano mathematics. Strongly Agree Agree No Opinion Disagree Strongly Disagree Total Respondents	ce-based tes	sts) for st	tudent e	valuation i	n	ing	Percent	3 10 11 3 18 Respons
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tackle complex problems		_						ı	Percent	Tot
Strongly Agree		-					\vdash		45	8
Agree									33	6
No Opinion							-		4	
Disagree							\vdash		18	3
Strongly Disagree									1	
Total Respondents										18
T32 I successfully comp			el Cal	culus	class	in hig	gh scho	ol	Response	Respons
(e.g. Advanced Placemer	it) or colleg	ge.							Percent	Tota
Strongly Agree									37	7
Agree									13	2
No Opinion									8	1
Disagree									27	5
Strongly Disagree									14	2
Total Respondents										18
T33 I need more support	t from my s	chool 1	to effe	ctivel	v teac	h mv			Response	Respons
mathematics classes.	, -				,				Percent	Tot
Strongly Agree					1				4	100
Agree							1		22	4
No Opinion							\vdash		22	4
Disagree							 		40	
Strongly Disagree		_					\vdash		11	2
Total Respondents									11	18
Total Respondents										10
T34 Teachers in my scho	ool regularly	work	togetl	ner in	reviev	vino s	tudent		Response	Respons
work in mathematics.	or regularly	Wolli	togen		101101	ving o	raaciii		Percent	Tota
Strongly Agree					1		П	I	12	2
Agree		-							36	6
No Opinion							 		14	2
Disagree		_					 		30	
U									8	1
Strongly Disagree									0	
										18
Total Respondents										
	ool examine	e disag	grega	ted st	udent	achie	vemen	t	Response	Respons
T35 Teachers in my scho		_	grega	ted st	udent	achie	evemen	t	Response Percent	
T35 Teachers in my schodata to inform the mathe		_	grega	ted st	udent	achie	evemen	t T	•	Tot
T35 Teachers in my schodata to inform the mathe Strongly Agree		_	grega	ted st	udent	achie	evemen	t	Percent	Tot
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Total Respondents T35 Teachers in my schodata to inform the mather Strongly Agree Agree No Opinion Disagree Strongly Disagree		_	grega	ted st	udent	achie	evemen	t	Percent 7 35	Respons Tot: 1 6 5 4

Appendix B Virginia Graduation Requirements

YOUR High School Diploma

Most Virginia students earn either a Standard Diploma or an Advanced Studies Diploma. Beginning with the graduating class of 2004*, students must earn a combination of standard and verified units of credit to receive either diploma. Students earn a *standard unit of credit* for a course by successfully completing 140 clock hours of instruction and meeting the objectives of the course. A *verified unit of credit* is awarded for a course in which a student earns a standard unit of credit and achieves a passing score on a corresponding Standards of Learning (SOL) test or other test approved by the Board of Education. Six verified credits are required for a Standard Diploma. Nine verified credits are required for an Advanced Studies Diploma.

2 + 4 = Standard Diploma

"2 + 4" is an easy way for students in the graduating classes of 2004, 2005, and 2006 to remember the combination of verified credits required to earn a Standard Diploma. You are included in a transition period** established by the Board of Education for the gradual phase-in of Virginia's new graduation requirements.

The "2" in the equation represents the two verified credits in English you must earn to graduate with a Standard Diploma. Most students will earn these credits by passing these two end-of-course SOL tests, which typically are taken during the junior year:

■ English: Reading, Literature, and Research

■ English: Writing

You also may earn the two required verified credits in English by passing substitute tests approved by the Board of Education. Your guidance counselor can give you more information about these substitute tests.

^{*} Students who entered the ninth grade for the first time during 2000-01.

^{**} Includes all students who entered the ninth grade for the first time during 2000-01, 2001-02, and 2002-03.

The "4" in 2+4 represents the other four verified credits students must earn for a Standard Diploma. Students in the classes of 2004, 2005, and 2006 may earn these 4 verified credits by passing any four SOL tests or substitute tests approved by the board.

2+4 means students included in the transition period may lean on their strongest subjects as they earn the six verified credits required for a Standard Diploma.

For example, a student may earn a Standard Diploma by passing the required number of courses, passing the two end-of-course English SOL tests, passing the Algebra I test, passing the World History I test, and passing two career and technical examinations on the Board of Education's list of approved substitute tests (see "Frequently Asked Questions" for more information on substitute tests).

Transition students who, after remediation, fail a retake of a history/ social science or science test, but achieve a score of 375 or better, may be awarded a verified credit by their local school board, following a review of their class work and/or a demonstration of their mastery of the content of the course. Because these are locally awarded verified credits, requirements may vary from school division to school division. Ask your guidance counselor for more information about locally awarded verified credits.

Credits required for a Standard Diploma for the classes of 2004, 2005, and 2006

Subject Area	Standard Units of Credit	Verified Units of Credit
English	4	2
Mathematics	3	
Science	3	
History and Social Science	3	
Health and Physical Education	2	
Fine or Practical Arts	1	
Electives	6	
Student-Selected Tests		4
Total	22	6

Earning a Standard Diploma After 2006

Beginning with the graduating class of 2007*, students will earn a Standard Diploma by passing the required courses and passing two end-of-course English tests, one test each in mathematics, history/social science, and science, and one test of their own choosing.

2 + More = Advanced Studies Diploma

The new testing requirements for an Advanced Studies Diploma also became effective with the class of 2004. Students earn an Advanced Studies Diploma by passing the required courses and passing the two end-of-course English tests, two tests each in mathematics, history/social science, and science, and one test of their own choosing, for a total of nine verified credits.

Credits required for an Advanced Studies Diploma for students who entered the ninth grade in 2000-01 (class of 2004 and beyond)

Subject Area	Standard Units of Credit	Verified Units of Credit
English	4	2
Mathematics	4	2
Science	4	2
History and Social Science	4	2
Foreign Language	3	
Health and Physical Education	2	
Fine or Practical Arts	1	
Electives	2	
Student-Selected Tests		1
Total	24	9

The Virginia Department of Education does not unlawfully discriminate on the basis of sex, race, color, religion, disabilities, or national origin in employment or in its educational programs and activities.

^{*} Students who entered the ninth grade for the first time in 2003-04.

Possible Sequences of Courses for Mathematics Stafford County Public Schools

Appendix C SCPS Middle and High School Mathematics Course Sequences/Pathways

Initial placement based on promotion to grade 6. +Sixth Grade Math +Seventh Grade Math + Eighth Grade Math Algebra I Part 1 + Algebra I Bart 2 ³ + Algebra I Part 2 ³ + Algebra I Part 2 ³ + Algebra I Part 2 ³ High Applications ⁴	Initial placement based on teacher recommendation, Fifth Grade SOL test in mathematics, and classroom performance. +Extended Math 6 +Extended Math 7 +Advanced Geometry +Advanced Geometry +Geometry	Stude test in place
+Sixth Grade Math +Seventh Grade Math + Eighth Grade Math Algebra I Part 1 + Algebra I + Advanced Geome + Algebra I Part 2³ + Geometry or Geometry or Hadvanced Algebra or with Applications 4 + Algebra I	Extended Math 6 ¹ Extended Math 7 ² Avanced Algebra I	+ Extended Math 7 ² + Advanced Algebra I + Advanced Geometry
+Seventh Grade Math + Eighth Grade Math Algebra I Part 1 + Algebra I + Advanced Geome + Algebra I Part 2 ³ + Geometry or Geometry or Halgebra I + Algebra I with Applications ⁴ + Advanced Algebra	xtended Math 7 ² dvanced Algebra I	+ Advanced Algebra I + Advanced Geometry
+ Eighth Grade Math Algebra I Part 1 + Algebra I + Advanced Geome + Algebra I Part 2³ + Geometry or Geometry or Hadvanced Algebra Algebra I + Algebr	dvanced Algebra I	+ Advanced Geometry
Algebra I Part 1 + Algebra I + Algebra I + Algebra I Part 2³ + Geometry or Geometry or Halgebra I with Applications ⁴		
+ Algebra I Part 2 ³ + Geometry or Geometry or + Algebra I with Applications ⁴		+ Advanced Algebra II
	+ Advanced Algebra II + Algebra II	Math Analysis with Trigonometry
Use the definition of the connect of	th Analysis with Trigonometry Algebra III with Trigonometry	Dual Enrollment Calculus ⁵ or Advanced Placement Calculus (AB or BC) ⁶
Algebra III with Dual Enrollment Calculus 5 Trigonometry Advanced Placement	Dual Enrollment Calculus 5 or Advanced Placement Calculus (AB or BC) 6 or Or Advanced Placement Statistics ⁶ Advanced Placement Statistics ⁶ Or Advanced Placement Statistics ⁶	Probability and Statistics with ith Discrete Topics or Advanced Placement Statistics ⁶

+ End of course SOL test required when students enroll in these classes

Extended Math 6 students will take the Math 6 SOL test.

Extended Math 7 students will take the Math 8 SOL test.

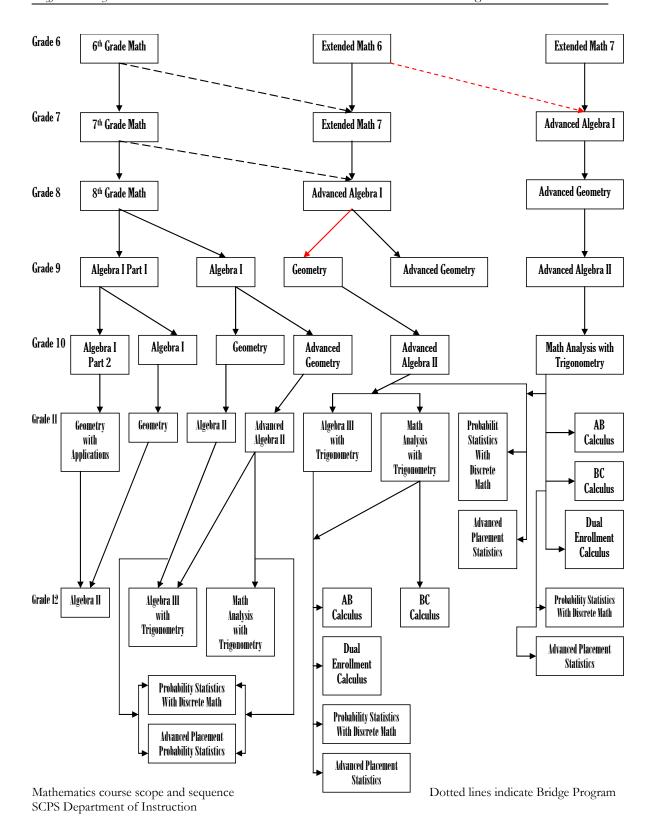
Algebra I Part 2 students will take the Algebra I SOL test.

Geometry with Applications students will take the Geometry SOL test. Dual Enrollment Calculus is a college level course with concurrent enrollment at Germanna Community College. - 6 6 4 6 9

AP Calculus and AP Statistics are college level courses and students will take the national Advanced Placement test to qualify for college credit.

Rev. 10/13/05

SCPS Department of Instruction



Appendix D SCPS Mathematics Program Information Regarding Placement for Rising Sixth Graders

Description of Sixth Grade Courses

Grade 6 Mathematics- A one-year course that includes all of Virginia's Sixth Grade

Standards of Learning for Mathematics. Students enrolled in this course will take the Grade 6 mathematics Standards of Learning

test.

Extended Math 6- A one-year course that includes all of Virginia's Sixth Grade

Standards of Learning and part of the Seventh Grade Standards of Learning for Mathematics. Students enrolled in this course will take

the Grade 6 mathematics Standards of Learning test.

Extended Math 7- A one-year course that includes all of Virginia's Eighth Grade

Standards of Learning and part of the Seventh Grade Standards of Learning for Mathematics. Students enrolled in this course will take the Grade 8 mathematics Standards of Learning test. (Placement

test required.)

Criteria for Student Recommendation

Fifth grade teachers will use the following criteria in making recommendations for student placement into mathematics classes for the 2004-2005 school year.

Extended Math 6

Extended Math 6 is a sixth grade course that covers all of the Sixth Grade and a portion of the Seventh Grade Standards of Learning for Mathematics. Students are recommended for placement into this course based upon two sets of criteria (I and II) listed below. Students enrolled in this course will take the Grade 6 Standards of Learning test.

- I. Automatic recommendation for placement into Extended Math 6. Students who meet at least <u>one</u> of the following criteria:
 - A scale score of 500 or above on the fifth grade Standards of Learning Test in Mathematics.
 - Final average for the year on the fifth grade curriculum is an A.
- II. Other students who meet criteria 1 and successfully meet three out of the four remaining criteria may be recommended for Extended Math 6.
 - 1. a) A scale score of 400 to 499 on the fifth grade Standards of Learning Test in Mathematics; or
 - b) Final average for the year on the fifth grade curriculum is B or better.
 - 2. Demonstrates good work habits.
 - Perseveres in challenging situations, looks at mistakes as a learning opportunity.
 - Self-motivated to study and complete the assignments in mathematics.
 - Responsible completes assignments and keeps track of materials and completed work.

- Mature, able to focus on the task at hand and to learn from mistakes.
- 3. Demonstrates the ability to learn at an accelerated pace.
 - Can understand new concepts quickly.
 - Needs limited practice to perform a skill successfully.
 - Retains knowledge over time and needs minimal review.
- 4. Demonstrates a good skill base in mathematics.
 - Has an <u>overall average</u> of 3 or higher on the fifth grade math profile card.
 - Is competent with the basic facts, can recall from memory or has effective strategies for quick recall.
 - Is competent with addition, subtraction, multiplication, and division of reasonable whole numbers.
 - Understands fraction and decimal concepts.
- 5. Demonstrates the ability to work independently.
 - Is able to stay on task with minimal teacher direction.
 - Self-motivated and takes pride in work.

Extended Math 7

Extended Math 7 is a seventh grade course that covers all of the Eighth Grade and a portion of the Seventh Grade Standards of Learning for Mathematics. A select group of fifth grade students are tested for possible placement into this course. The Elementary Mathematics Coordinator will coordinate the assessment of students, communication with the parents of these students regarding final recommendations and communication with the Middle School Counselors regarding placement. Students enrolled in this course will take the Grade 8 Standards of Learning test.

Format for Communication

Math Profile Cards- In June, teachers' **final recommendations** are to be recorded on the

profile cards in the space provided. Profile cards will be bundled by receiving middle school and returned to the elementary guidance office. The elementary guidance office will forward the profile cards to the appropriate middle school guidance office for distribution to mathematics department chair. The Mathematics Profile cards are not to be put in the

permanent records.

Math Placement Sheet- Teachers will review and complete the yellow copy from the SCPS Middle

School Mathematics Placement sheet that was first completed in April.

Return this form to the elementary guidance counselor.

Parents- A note should be included in the report card informing parents of their

fifth grade student's recommended mathematics course placement for sixth

06/28/06

grade.

Stafford County Public Schools Department of Instruction

Appendix E SCPS Mathematics Program

Information Regarding Mathematics Placement for Rising Ninth Graders

Course of Studies:

Please find attached a course of studies for the middle and high school mathematics program. Please note the sequences in gray and the comments on those sequences. Further descriptions of classes may be found in the High School Program of Studies catalog.

Advanced Algebra II for Rising 9th Graders:

Students who pass Advanced Geometry in grade 8 and who meet the criteria listed below are to be placed in Advanced Algebra II for the next school year.

Students who do not meet these criteria should be placed in Algebra II.

- Pass the Geometry I SOL test
- Teacher recommendations
- Advanced Geometry grade for the year is C+ or better

Advanced Geometry for Rising 9th Graders:

Students who pass Advanced Algebra I in grade 8 and who meet the criteria listed below are to be placed in Advanced Geometry for the next school year.

Students who do not meet these criteria should be placed in Geometry.

- Pass the Algebra I SOL test
- Teacher recommendations
- Advanced Algebra I grade for the year is C+ or better

Geometry for Rising 9th Graders:

Students who have completed Algebra I and do not meet the requirements for Advanced Geometry should be placed in Geometry.

Algebra I for Rising 9th graders:

Students who pass Math 8 and who meet 2 out of the 3 criteria listed below are to be placed in Algebra I for the next school year.

Students who do not meet these criteria should be placed in Algebra I Part 1.

- Pass the Grade 8 mathematics SOL test.
- Teacher recommendation.
- Math 8 grade for the year is C+ or better.

Algebra I Part 1 for Rising 9th Graders:

Students who are currently enrolled in Grade 8 mathematics and who do not meet the criteria for Algebra I should be placed in Algebra I Part 1.

Instructions for Completing the Math Profile Card

- In June, eighth grade math teachers will write at the top of each math profile card their recommendation for placement of students: Advanced Algebra II, Advanced Geometry, Geometry, Algebra I or Algebra I Part 1.
- The cards will be alphabetized and sent to the appropriate high school mathematics department chair.
- During the summer, the receiving high school mathematics department will review the profile cards for rising 9th graders. Adjustments in course placement will be made as needed.

SCPS Department of Instruction